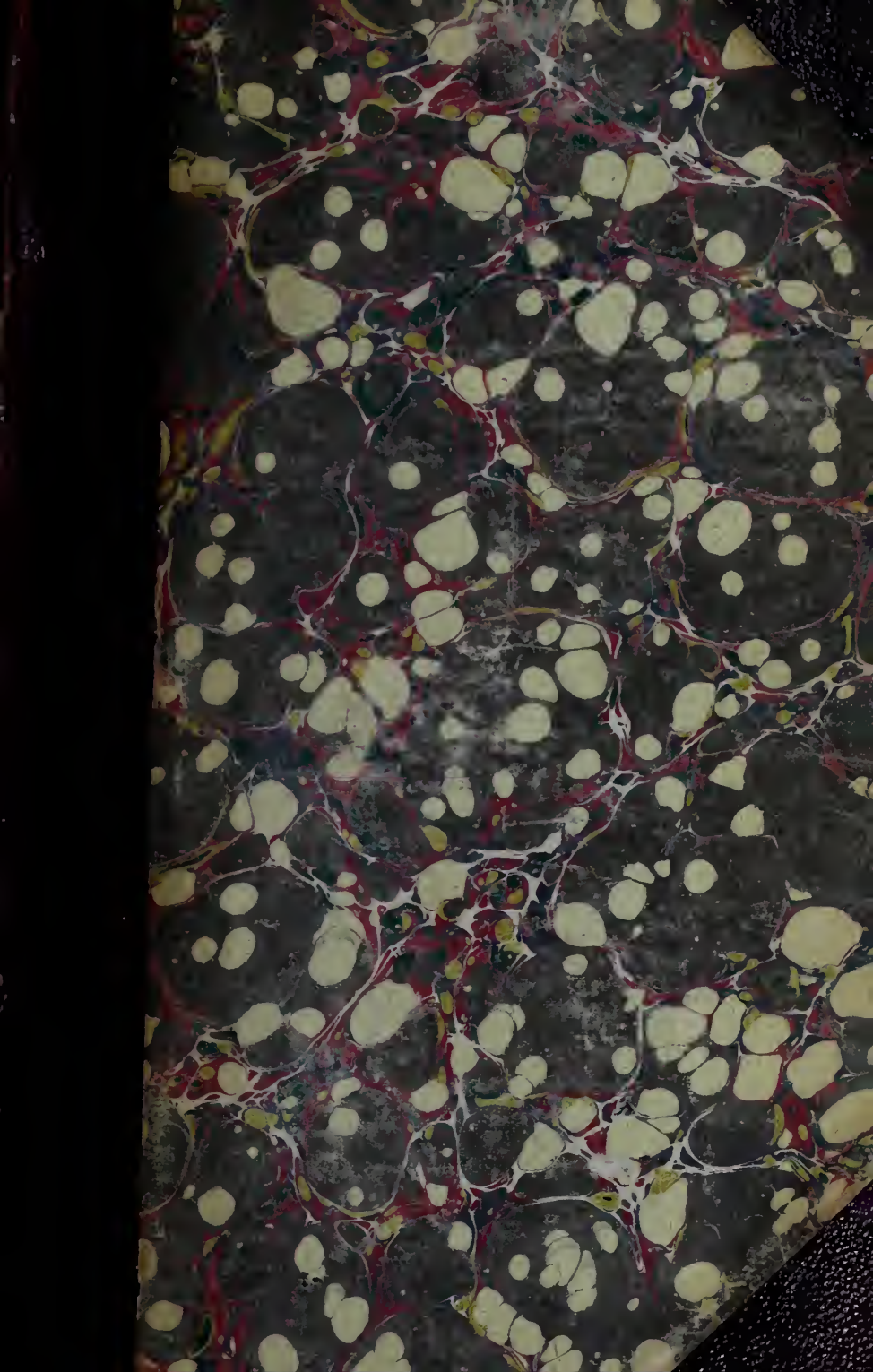

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JOURNAL

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THE ASIATIC SOCIETY.

No. 89.—MAY, 1839.

ART. I.—*Notice of Inscriptions in Behar, communicated by Mr.* RAVENSHAW. *By the Editors.*

We present our readers with a letter from Mr. RAVENSHAW, with which we received several copies and facsimiles of Inscriptions obtained by that gentleman during his tour in South Behar. We regret to say, that the most important and interesting of these impressions are so imperfect and confused as to baffle the attempts of the Pandit KAMALA KAUNT, who aided Mr. JAMES PRINSEP in his valuable discoveries. We allude particularly to the inscriptions on the inverted column in the fort of Behar. They are in the Sanscrit language, and character. Nos. 1 and 2 are duplicates taken on sized paper. The letters on the one have been inked on the obverse side, and on the other on the reverse. The only word yet deciphered is "*Srenayah,*" "orders," "files." From No. 3 of the same pillar these Sanscrit words have been discovered—"*labdhopáya xetropari ku-kriya tyá(jyá)* any "evil act against land obtained by any means, should be avoided."

Nos. 4, 5, 6, and 7, are in the same character and language, taken from the ruins of *Baudhist* statuary at *Barahgaon.* They appear to contain *Baudhist* moral sayings; example—

"*Ye dharma hetu prabhavah teshām hetun Tathágutam avagachchh.*"

"Know BUDH to be the author of those things which proceed from virtue as a cause."

We suspect that the image at this place (so described by Mr. RAVENSHAW) cannot be BHAIRAVA. The terrific SIVA would be certainly misplaced amongst the peace-loving divinities of the *Baudhists.*

No. 8 is in the *Deva Nagri*, and belongs to a class of inscriptions bearing the name of NA'YKA PRATA'PA DHAVALA DEVA RAJA of *Japila*. They are described by Mr. COLEBROOKE in the first volume of the Transactions of the Royal Asiatic Society (page 201), on inspection of the facsimiles taken by Dr. BUCHANAN.

No. 8 is that translated by that distinguished orientalist. "It is (to borrow his words,) "an inscription on a rock, denominated, from an "idol delineated on it, *Tárachándi*, in the vicinity of *Sahusram*, in "South Behar; and contains the protest of a chieftain named PRA-"TA'PA DHAVALA DE'VA, bearing the title of *Náyaca* and that of *Rája* "of *Japila*, against an usurpation of two villages by certain *Bráh-*"*mánas* in his neighborhood, under colour of a grant, surreptitiously "obtained through corruption of his officers, from the Rájá of *Gádhi-*"*nagara* or *Cányacubja* (*Canój*), who was the celebrated VEJAYA-"CHANDRA. Its date is 1229 Samvat, corresponding to A. D. 1173."

The obliteration of the first digit has led Mr. RAVENSHAW to impute to these inscriptions an age more remote by one thousand years than the true era.

No. 9 belongs to the same class, but is not described by Mr. COLEBROOKE. The transcriber of No. 8 seems to have been no great scholar; but the transcriber of No. 9 is evidently quite illiterate. He introduces his own *Lala* letters where they differ from the *Deva Nagri*, and is baffled by the conjunct letters. From what is deciphered, this appears to commemorate, by the Raja the construction of a road, "like steps" from the *Pratabali* river to the top of the adjoining hill, on which are impressions of the feet of VISHNU and CHANDI. The seal of BHIKU Pandit, the composer of the inscription, is on the slab, which besides the fact commemorated, records some notice of this redoubtable Raja's family. Parts of the slab are obliterated, but the transcription of what is legible by a scholar, would enable us to give a more correct analysis of its contents.

The impression of No. 10 is as imperfect and confused as those of Nos. 1, 2, and 3; so that we must wait the receipt of a more correct impression before we can hope to arrive at the contents of this stone.

The four Persian inscriptions communicated by Mr. RAVENSHAW, require little comment in addition to the notice by that gentleman. From the first, we learn that in the time of AKBAR "his servants had thousands of powers," and that SAID SURFARAZ KHAN, (one of them perhaps) founded the *Musjid*, "a sublime shrine. He was a pious man, as it were a sacred *parterre* in spring."

From the second we learn, that MUNIR *Raj* built "this tomb of the IMAM of age."—In these verses the Prophet is piously apostrophized.

The third informs us, that in the reign of Shah Jehan the Just, Habib Sur (the *Raj* no doubt) constructed the basin of Sharaf-ad-din, and "repaired *(babast)* and made this sublime *Id-gah*, and the brick pavement." Mr. Ravenshaw informs us, that this saint died in 782. A. H. The dedication of the basin is therefore a posthumous honor.

In the last line of the third couplet of the epitaph on Ibrahim Bayu we have hazarded a correction,—*Kin-toz* for *Kin-loz*. The first, however unusual as a compound, may mean *zealous* or *fervent*, the second has no sense. This good man it seems "was royal in his disposition, and in religion as fervent as Abraham." He died in the month of Hajj on a Sunday. The line obliterated would have supplied the date. The concluding line prays "that God may make easy his last account."

A correct plate of Mr. Ravenshaw's sketch of the tower of Jara'-sandha near *Girik* is annexed. Mr. Ravenshaw has detailed the *pauranic* legend of this '*Asur*,' demon, *(not Assyrian)*. The term is given to the foes of Krishna. Kansa, the slain son-in-law of Jarasandha, and the uncle of Krishna, is so called, (See Wilson's Dictionary.)

We are much mortified, in being obliged to send forth this Number without an analysis of the inscriptions on the inverted column in the fort and on the stone on the hill near *Sasseram*, now called *Chandan-Shahid*,—of course from some *Moslim* devotee. They may, we think, afford interesting historical facts. We wish Mr. Ravenshaw, or any other friend to antiquarian research, could find the opportunity of taking more perfect facsimiles. Captain Burns would render important service if he would describe minutely the best process and fittest materials for taking accurate facsimiles from engraved slabs. In the meantime we suggest that other impressions be taken on damp or sized paper, and that they be sent to us without any attempt to delineate in ink the letters either on the concave or convex faces. If they be sent in duplicate the chance of being deciphered is greater.

The slab to which Mr. Ravenshaw refers at the close of his valuable letter has been received, and will be noticed in an early Number. We now pass on to that gentleman's letter.

To the Secretary of the Asiatic Society, Calcutta.

Sir,

I have the pleasure to forward for the inspection of the Society, a few inscriptions collected by me in a late tour through the district of Behar, in the hope that some of them may prove to be new, and useful in illustrating the history of the country. No. 1, is an inscription on a stone pillar found among the ruins of the fort of Behar.

The fort is supposed by Buchanan* to have been built by the Maga Rajas, who during the first three centuries after Christ ruled over this part of the country, then called *Magadha*, and indeed still called *Magad* by the lower orders of natives to this day. The shaft of the column is about eleven feet high, being a fragment only of the original pillar. It is situated on the high ground, a little to the west of the northern gate of the fort. Its original position is said to have been in front of the gate ; on removing it to its present site, the pillar was erected in a reversed position, with its base in the air, and its summit in the ground.

Various expedients were tried, in order to take off the inscription ; but wax, sealing wax, and the ordinary method of inking the pillar, and taking the impression on damp paper, alike failed. At last I had recourse to sized paper, which being pressed while damp carefully into the letters, retained the form of them when dry. In No. 1, the cavities of the letters have been filled with ink. In No. 2, which is another copy of the same inscription, the reverse or embossed side has been inked. The latter appears the best copy, and if the paper be held up to the light the characters can be as distinctly traced as on the other. No. 3, is a copy of an inscription on the upper (really lower) part of the column.

As I have never seen any characters which resemble those on the Behar column, I shall be glad to learn from your Society by what name they are designated, and to what era they belong. It is singular that Buchanan should not have alluded to this pillar in his description of the fort of the Magas while giving an account of the numerous Boodhist images, &c. scattered among the ruins.

There are several ancient Mahomedan buildings in the town and its vicinity, which are likewise unnoticed by Buchanan. The principal one is the tomb or Durgah of a holy saint, styled Huzrat Mukdoom Ool Moolk Shah Shureef Oodeen. There is an inscription in the *Cufic* character over the entrances to the Durgah, which, however, time has rendered illegible, with the exception of the date of the death of the saint, 782 Hijree, (1380 A. D.) and of the erection of the tomb, 977 Hijree (1569 A. D.) The Durgah is held in great veneration by the Mahomedans, who at the *Oors*, or anniversary of the death of the saint assemble from all parts of the country, it is said to the number sometimes of 50,000. This ceremony takes place in December. The tomb, the adjoining mosque, and other buildings, are illuminated, and prayers are offered up for the dead and the living.

* Page 89, in Martin's Eastern India.

Extensive endowments of rent-free lands have been granted at different times by Emperors, Amils, and pious Mahomedans, for the support of the shrine, the administration of which, is entrusted to a *Syjadah Nusheen*, an hereditary officer, to whom great reverence is paid by the Faithful. But a great portion of the lands has been alienated either to relations of the family, or in satisfaction of debts of former incumbents, and a great part has become liable to assessment under the Resumption Laws; so that little now remains for the support of the family, the splendour of religious festivals, or the maintenance of the Moolvees who were wont to teach to the rising generation the doctrines of the law and the tenets of the Prophet.

The following inscription is on the *Joomah Musjid*, date 1004 Hijree, in the reign of Akbar.

درزمان اکبر غازي شه عالم پناه چاکرانش راهزاران اقتدار
هم بیمن حضرت خان سعید سرفراز مسند عالي بناء مسجد کرد اختیار
بسکه ازفیض مقدس میشود ظاهر درو روضهٔ قدسي است گوي اندر بهار

سال تاریخش چواز پیر خرد جستم بگفت
رفت بود از هجرت خیرالبشر الف وچهار

The *Imambarah* has the following inscription, dated 1175 Hijree.

سنه ۱۱۷۵ هجري

منیري راج بتوفیق ایزد سبحان بنانمود چو این مدفن امام زمان
هزارو یکصدوهفتادو پنج گشت شمار زهجرت نبي ان سرور صغاروکبار

بکن تو حشرم یارب بسایهٔ حسنین
بحق احمد مختار شافع کونین

The subjoined is in a tank and *Eid Gah*, date 1065 Hijree, in the reign of Shah Jehan.

بدور شاه جهان بادشاه عدل گزین حبیب سور بناکرد حوض شرف الدین
وعیدگاه معلاش وفرش خشتي آن به بست وساخت بعون خدادرین دوران

هزارو پنج و شش سال هجرت آن سرور
که شد تمام بماه صفر بخیر و ظفر

At the distance of about three miles west of the town is a singular hill called *Peer Puhury*, from the tomb of a *Peer*, or saint, situated on the summit. His name was Huzrat Ibraham Byjoo, who from the subjoined copy of the inscription over the tomb appears to have died in 753 Hijree, (1352 A. D.,) or nearly five centuries ago, during the reign of the Patan monarch Feroz Sooltan, and about forty or fifty years before the invasion of Tymoor. This inscription is so far important that it verifies the date assigned to Feroz Shah being Slārā Rajab by Ferishta.*

سنه ۷۵۳ هجري

تاريخ وفات حضرت ابراهيم بيو
بعهد دولت شاه جهان گير که بادا درجهان ملک نوروز
شهنشاه جهان فيروز سلطان که برشاهان گيتي گشت فيروز
ملک سيرت ملک بيّو براهيم که بد دردين چو ابراهيم کين توز
بماه ذي الحجه يکشنبه ازروز
(*Line illegible.*)
بهجرت هفتصد وپنجه سه تاريخ مسافرشدملک درجنت اين روز
خداوندا بفضل خويش بروي کني آسان حساب آخرين روز

The tomb is a common square building, surmounted by a dome. The hill on which it stands is a very remarkable one. It is composed of cuboidal masses of crystallized sandstone having a fanciful resemblance to horn, and thence called by the learned, "Hornstone." The upper part of many of the rocks is soft sandstone, while the lower is crystallized; this is probably owing to decomposition, but the natives conceive it to be a new accretion, and maintain that the rock grows, "*jeeta*," a not uncommon idea even in England.

* Vide Prinsep's Useful Tables, page 117.

J.B. Fecit May 1839

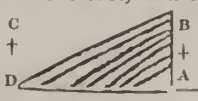
CAMEL CARRIAGE belonging to ROBERT M. BIRD ESQ

Built and driven by Robert M. Bird Esq. Two Thousand Miles in his Official Journey through the North Western Provinces during the cold Season of 1838-9

Diameter of the Wheels 5.5 feet

Marshall lith. Press Calcutta

The hill is about 300 feet high, composed of stratified masses of the Hornstone. It is quite perpendicular to the east, and sloping down to the west at an angle of about 40°



Other hills are generally in the shape of cones, but this seems to have been upheaved by a sudden force in the direction A B or of C D, snapping the subjacent crust, without disturbing the contiguous plain E. This perpendicular rock extends about a mile or more north and south, and there is no other hill within twelve miles. The character of the Behar Hills in general is very peculiar, being unlike that of any other country I have visited. They rise up out of the level plain in small conical isolated peaks from 200 to 300 feet high, apparently unconnected with each other, or any range of mountains. They are composed of a variety of rocks, coarse granite, hornstone, jasper, hornblende, &c. all mixed together without order, and all appearing to have undergone some degree of fusion. They suggest the idea that they existed previous to the plain which surrounds them, for if they had been forced up from below, the adjacent plain would have been upheaved with them in some degree; whereas it is as flat as possible up to their very base. It seems not improbable, therefore, that they originally formed the summits of a range of mountains, the vallies of which were subsequently filled up, forming the bed of some pre-adamite ocean. But I have forgotten the inscriptions in this geological speculation

The inscriptions numbered 4, 5, 6, and 7, were taken from the pedestals of statues of Boodha found at Baragaon, about seven miles west from the town of Behar, which Buchanan conceives to have been the residence of the Maga Rajas. Three or four high mounds composed of ruins of some large brick buildings are all that remain to attest its ancient grandeur. The Boodhist images lying about in all directions are very numerous; that of *Bhyroo* is of colossal dimensions, and made of granite.

Enclosed is a rough sketch* of a very remarkable tower about sixty feet high, and as many in circumference, situated on the summit of a hill 800 feet high, near Girick, about seven or eight miles from Rajgeer (*Rajgiri*) the ancient capital of Jarasanda, an Asur, or Assyrian, the contemporary of Chrishna, and who is supposed to have reigned over the country of Magadha, or Madhyadēs, about 1200 years before Christ.

* See Plate.

According to tradition, and the *Mahabharut*, Chrishna murdered the Raja of Mathurah, who was the son-in-law of Jarasanda, in order to obtain his dominions; upon which Jarasanda waged war with the Eastern Apollo, and compelled him to fly with all his milk maids to the west coast of India. Some years after, however, having obtained the aid of the Pandava Princes he returned with an army headed by Bheem and Arjuna. At Girick a pitched battle was fought, and Jarasanda is said to have fallen by the hand of Bheem. A detailed description of the pillar is to be found in Buchanan, page 79. It is called by the natives the *Bythaki*, or seat of Jarasanda; but it is not improbable that it may have been erected either in commemoration of his victory over Chrishna, or of his death in the final battle. It is a solid brick building, without any inscription or image; about two-thirds of the height from the ground there are three projecting cornices about a foot apart, the intervals being decorated with carved ornaments, the principal of which is a *gurha*, or vessel for holding water.

The inscriptions of Nos. 8, 9, and 10, were presented to me at Sasseram by Shah-Kubeerood-Deen, the *Syjadah Nusheen* of a religious endowment at that place.

No. 8 was taken at Tarachundee, two miles south-west from Sasseram; the date is 3rd Jeyte 229 Sumbut (A. D. 172), and Raja Dowul Pertab is the author.

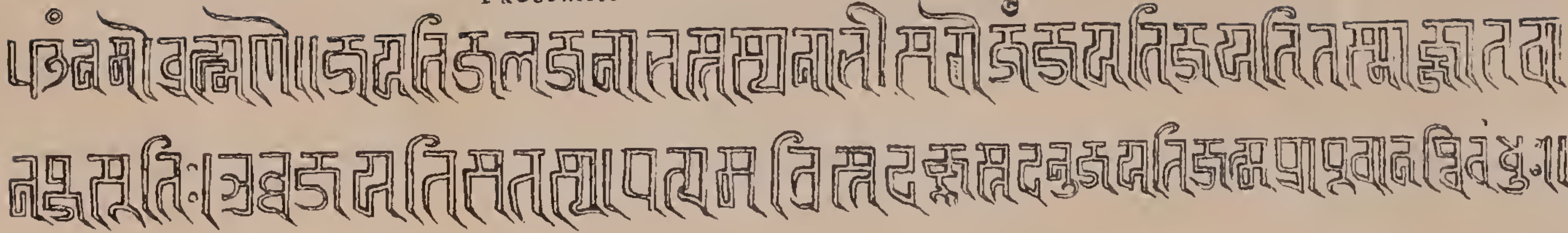
No. 9 is an inscription on a rock by the same Raja, at a place called Amjur, near Phoolevaria, ten miles south from Sasseram—the date is Bysack 2nd, Sumbut 229, or A. D. 172.

No. 10 is an inscription found on a stone at the summit of a hill near Sasseram, called *Chundun-Shaheed*. It is in the ancient character of the Allahabad and Bettiah Pillars, the decyphering of which has conferred immortal honor on the name of JAMES PRINSEP. The following inscription is taken from the gateway of the palace on the summit of the celebrated hill fortress of Rhotas. From this it appears that the palace was built in 1005 Hijree, (1596, A. D.) by Raja Man Sing, viceroy of Behar and Bengal in the time of Akbar.

آنچه بردروازهٔ محل قلعه رهتاس نوشته است

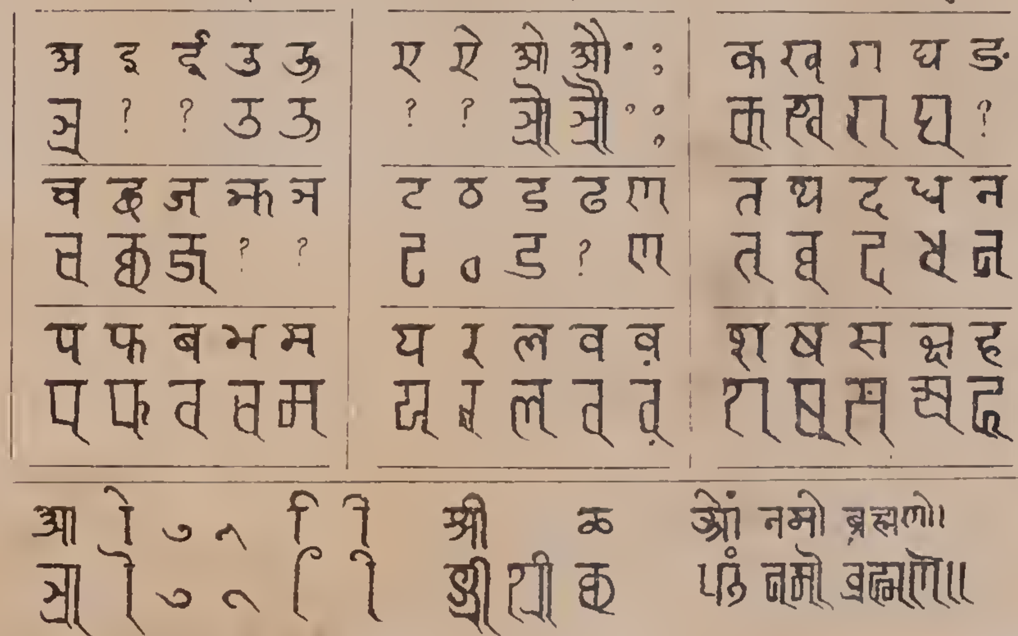
دروازه مقیم بنای چوشد تمام دروازه سپهر زرشکش سقیم شد
سال عمارتش چونمودم بطبع گفت ازراجه مان سکه بنای مقیم شد
تحریر فی التاریخ بست وهشتم شهر رجب المرجب سنهٔ هزار وپنج

Facsimile of the first asloka of the 1st Plate.



The seal, full size.

The alphabet of the above compared with modern Devanagri.



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The Sungskrit inscription at the Kothoutiga gate of the fort, alluded to by Buchanan, page 432, was, I believe, brought to Chuprah by Mr. Walter Ewer, and is at present in the grounds of Mr. Luke's house. I shall endeavour either to forward the original, or a copy to the Asiatic Society.

I have the honor to be,
Sir,
Your most obedient servant,
E. L. RAVENSHAW.

Chuprah,
21*st April*, 1839.

P. S.—Since writing the above Mr. Luke has promised to forward the slab by a boat which is about to start for Calcutta.

Art. II.—*The "Mahimnastava," or a Hymn to Shiva; with an English translation. By the Rev.* Krishna Mohana Banerji.

The well-known invocation to Shiva, of which an English translation is presented to the public, together with the original, in the following lines, is held in high repute among the Hindus. It purports to be written by Pushpadanta, chief of the *Gandharvas*, who was in the habit of stealing flowers, for the purpose of worshipping Shiva with them, from the garden of king Va'hu, unseen by the keepers of the garden. As he was gifted with the power of walking in the air he baffled for a long time all the efforts of the keepers to catch him, who observed every morning large quantities of flowers stolen away, but could not ascertain how the thief got into the garden by night, in spite of all their watchful vigilance. They suspected at last that it was a being capable of flying that committed the robbery night by night, and left in several places some holy flowers sacred to Shiva, with the hope that the thief might tread upon them in the dark and be deprived of his supernatural powers, in consequence of the curse which such an insult to those sacred mysteries would necessarily bring upon him. The plan had the desired effect. The *Gandharva* trod upon the sacred flowers, and lost his power of riding on the wind. He was accordingly caught and taken into custody, when, through fear of the king whom he had offended by stealing his flowers, he offered the following supplication to Shiva.

In the translation of this composition I have consulted the *scholia* of a learned commentator, as well a version in the Bengalee language, both of which have been printed with the text. As all classes of the

Hindus are allowed the privilege of worshipping SHIVA, this hymn is distinguished from invocations to other gods by the liberty with which it may be read and repeated even by the *Shudras,* and it is therefore more widely known among the natives than the other prayers and mantras with which the Brahmins alone are familiar, because they alone are allowed to use them.

महिम्नः पारन्ते परमविदुषो यद्यसदृशी
स्तुतिर्ब्रह्मादीनामपि तदवसन्ना त्वयि गिरः ।
अथावाच्यः सर्वः स्वमतिपरिणामावधि गृणन्
ममाप्येष स्तोत्रे हर निरपवादः परिकरः ॥१॥

If the offering of praise by one that does not comprehend the supreme limits of thy glory be unworthy of thee, then the language even of BRAHMA' and the other gods must be deficient. No one therefore that sings according to the measure of his understanding is culpable—and this attempt of mine too, O HARA! to celebrate thy praise, may be excused.

अतीतः पन्थानं तव च महिमा वाङ्मनसयो
रतद्व्यावृत्या यं चकित मभिधत्ते श्रुतिरपि ।
स कस्य स्तोतव्यः कतिविधगुणः कस्य विषयः
पदे त्वर्वाचीने पतति न मनः कस्य न वचः ॥२॥

Thy glory, incapable as it is of any definition, and described with awe even by the Vedas, surpasses the utmost stretch of thought and expression. Who then can duly set forth its praise? Who can comprehend its nature and properties? And yet as to its figurative illustrations, vouchsafed by thee in condescension to the infirmities of the faithful, who would not set his mind upon them and give expression to them?

मधुस्फीतावाचः परममृतं निर्म्मितवतः
स्तव ब्रह्मण् किंवागपि सुरगुरोर्विस्मयपदं ।
मम त्वेतां वाणीं गुणकथनपुण्येन भवतः
पुनामीत्येतस्मिन् पुरमथन बुद्धिर्व्यवसिता ॥३॥

Can the word even of the chief of gods (BRAHMA') be a matter of wonder to thee who art the cause of the nectar-like sweets of language? My mind is thus bent upon this invocation, O thou destroyer of TRIPURA, to the end that I may purify my language by the virtue of recounting thy attributes.

तवैश्वर्य्यं यत्तज्जगदुदयरक्षाप्रलयकृत्
त्रयीवस्तु व्यस्तं तिसृषु गुणभिन्नासु तनुषु ।
अभव्यानामस्मिन् वरद रमणीयामरमणीं
विहन्तुं व्याक्रोशीं विदधत इहैके जडधियः ॥४॥

Thy godhead, celebrated in the Vedas, and displayed in the threefold forms of BRAHMA', VISHNU, and SHIVA, distinguished severally by the three properties of *Sattva Rajas,* and *Tamas,* is the cause of the creation, preservation, and annihilation of the universe; and yet there are certain foolish and stupid men in the world who oppose this thy godhead in an abominable way, however acceptable that way may be to the wicked.

किमीहः किं कायः सखलु किमुपाय स्त्रिभुवनं
किमाधारो धाता सृजति किमुपादान इतिच ।
अतर्क्यैश्वर्ये त्वय्यनवसरदुस्थो हतधियः
कुतर्कोयं कांश्चिन्मुखरयति मोहाय जगतः ॥५॥

"What is his attempt? What his form? By what means—with what implements—of what materials does the Creator form the universe?" Vain questions like these, unworthy of thy incomprehensible glory, and therefore wicked, pass the lips of some infatuated men for the delusion of the world.

अजन्मानो लोकाः किमवयववन्तोपि जगता
मधिष्ठातारं किं भवविधिरनादृत्य भवति ।
अनीशोवा कुर्य्याद्भुवनजनने कः परिकरं
यतो मन्दा स्त्वां प्रत्यमरवर संशेरत इमे ॥६॥

Can this embodied universe be uncreate? Could its existence proceed from any one except the Creator of the world? Or who else but the

Lord could attempt the production of the world? The wicked, regardless of these considerations, indulge in scepticism concerning thee, O thou supreme of immortals!

त्रयी साङ्ख्यं योगः पशुपतिमतं वैष्णवमिति
प्रभिन्ने प्रस्थाने परमिदमदः पथ्यमितिच ।
रुचीणां वैचित्र्यादृजुकुटिलनानापथजुषां
नृणामेको गम्य स्त्वमसि पयसा मर्णवइव ॥७॥

While the Vedas, the Sánkhya philosophy, the Yoga shástra, the system concerning the creature and the creator, the doctrine of the Vaishnavas, &c. involve many conflicting theories and sentiments of which some follow this, some that—and while there are consequently different kinds of men pursuing various paths, straight, as well as crooked, according to the diversity of their opinions—thou art alone the one end of all these sects, as the sea is of different rivulets.

महोक्षः खट्वाङ्गं परशुरजिनं भस्म फणिनः
कपालञ्चेतीयत्तव वरद तन्त्रोपकरणं ।
सुरास्तां न्तां मृद्धिं दधति च भवद्भ्रूप्रणिहितां
नहि स्वात्मारामं विषयमृगतृष्णा भ्रमयति ॥८॥

A large bull, a wooden staff, an axe, a tiger or elephant's hide, ashes, snakes, and a skull—these, O thou dispenser of blessings, are thy principal ornaments and furniture. The other gods are indeed tenacious of this and that enjoyment, all which thou mayest call forth by a mere turn of thy eye—but a feverish thirst after such objects cannot disturb a self-contented being.

ध्रुवं कश्चित् सर्वं सकल मपर स्त्वध्रुवमिदं
परो ध्रौव्याध्रौवे जगति गदति व्यस्तविषये ।
समस्ते प्येतस्मिन् पुरमथन तैर्विस्मित इव
स्तुवन् जिह्रेमि त्वां न खलु ननु धृष्टा मुखरता ॥९॥

One philosopher* says that every thing is eternal; another† says that every thing here is perishable; while a third‡ maintains that in

* Kapila, the founder of the *Sánkhya* philosophy

† Buddha, the last pretended incarnation of the Deity, from whom originated the sect which goes by his name.

‡ Goutama the founder of the *Nyáya* philosophy.

this universe, composed of various materials, some things are eternal, others perishable.—Although I am in a manner bewildered by these speculations, I am not still ashamed of setting forth thy praise, for my tongue cannot be held.

तवैश्वर्य्यं यत्नाद्यदुपरि विरिञ्चिर्हरिरधः
परिच्छेत्तुं यातावनल मनिलस्कन्दवपुषः ।
ततो भक्तिश्रद्धाभरगुरुगृणद्भ्यां गिरिश यत्
स्वयं तस्थे ताभ्यां तव किमनुवृत्ति र्न फलति ॥१०॥

In order to estimate thy glory, who art fire and light, BRAHMA´ attempted in vain to measure its upper and VISHNU its lower part.—But when they sang thy praise with faith and devotion, then thou didst manifest thyself unto them. Can then thy service ever be pronounced futile or fruitless?

अयत्नादासाद्य त्रिभुवन मवैरव्यतिकरं
दशास्यो यद्बाहूनभृत रणकण्डुपरवशान् ।
शिरः पद्मश्रेणीरचितचरणाम्भोरुहबलेः
स्थिराया स्त्वद्भक्ते स्त्रिपुरहर विष्फुर्जितमिदं ॥११॥

It was only owing to the unshaken faith with which he worshipped thy lotus-feet with his heads, as with so many rows of lotuses, that, O thou destroyer of TRIPURA, the ten-headed RA'VANA having gained unrivalled and undisturbed possession of the world exerted the strength of his arms, ever itching for war.

अमुष्य त्वत्सेवासमधिगतसारं भुजवनं
बलात् कैलासेपि त्वदधिवसतौ विक्रमयतः ।
अलभ्या पाताले प्यलसचलितङ्गुष्ठशिरसि
प्रतिष्ठा त्वय्यासीत् ध्रुव मुपचितो मुह्यति खलः ॥१२॥

When he (RA'VANA) exerted against *Kailásha,* even thy dwelling, the power of those very arms which he had got as a reward for his services to thee, (so true it is that the wicked forget themselves in prosperity!) it would have been impossible for him to find any resting place, even in hell, hadst thou only slightly moved the tip of thy toe. [*But thy long-suffering remembered his former devotions, and spared him.*]

यदृद्धिं सूचाम्नो वरद परमोच्चैरपि सती
मधश्चक्रे बाणः परिजनविधेयत्रिभुवनः ।
न तच्चित्रं तस्मिन् वरिवसितरि त्वच्चरणयो
र्न कस्या उन्नत्यै भवति शिरसस्त्वय्यवनतिः ॥१३॥

That VA'NA, who had reduced the whole world under his subjection, should pull down the dominion of INDRA, although so high, was not a matter of wonder; because he worshipped thy feet. What elevation is there which the prostration of the head before thy feet could not procure!

अकाण्डब्रह्माण्डक्षयचकितदेवासुरकृपा
विधेयस्यासीद्य स्त्रिनयन विषं संहृतवतः ।
सकल्माषः कण्ठे तव नु कुरुते न श्रियमहो
विकारोपि श्लाघ्यो भुवनभयभङ्गव्यसनिनः ॥१४॥

Does not the blue spot which coloured thy throat, when thou drankest the deadly potion in pity to the gods and demons, who were all afraid that the universe should have an untimely dissolution, serve to set forth thy beauty? Surely even a disfigurement becomes graceful in a person who undertakes to relieve the world from fear.

असिद्धार्था नैव क्वचिदपि सदेवासुरनरे
निवर्त्तन्ते नित्यं जगति जयिनो यस्य विशिखाः ।
स पश्यन्नीश त्वामितरसुरसाधारणमभूत्
स्मरः स्मर्त्तव्यात्मा नहि वशिषु पथ्यः परिभवः ॥१५॥

That victor, whose shafts were never discharged in vain in this world consisting of gods, demons, and men, even KANDARPA, met with dissolution when he looked upon thee, O Lord, as if thou wert like any other common god. So impossible is it to despise the self-controlled with impunity!

महीपादाघाताद्व्रजति सहसा संशयपदं
पदं विष्णोर्भ्राम्यद्भुजपरिघरुग्णग्रहगणं ।

मुहुर्द्यौर्दौस्थ्यं यात्यनिभृतजटाताडितततटा
जगद्रक्षायै त्वन्नटसि ननु वामैव विभुता ॥१६॥

The safety of the earth became doubtful by the stamp of thy feet—the firmament became giddy and unstable, with all its stars and luminaries, shattered by the stroke of thy hand—and the heavens, touched by thy clotted hair fell into a troublous state, when thou dancedst in order to defend the universe from the *Rakshases*. How mysterious and seemingly contradictory must be this thy providence, by which thou didst thus trouble the creation while thou wert in fact effecting its preservation!

वियद्व्यापी तारागणगुणितफेणोद्गमरुचिः
प्रवाहो वारां यः पृषतलघुदृष्टः शिरसि ते ।
जगद्द्वीपाकारं जलधिवलयं तेन कृतमि—
त्यनेनैवोन्नेयं धृतमहिमदिव्यं तव वपुः ॥१७॥

Those streams of the *Ganga* which extend far in the sky, whose frothy appearance is that of clusters of sparkling stars, which replenished the mighty ocean, forming it like a great ring round the insular earth, looked a small drop when thou didst sustain them on thy head! What a glorious conception does this give of thy wondrous and majestic body!

रथक्षौणी यन्ता श्रुतिरगेन्द्रो धनुरथो
रथाङ्गे चन्द्रार्कौ रथचरणपाणिः शर इति ।
दिधक्षोस्ते कोयं त्रिपुरतृणमाडम्बरविधि
र्विधेयैः क्रीडन्त्यो न खलु परतन्त्राः प्रभुधियः ॥१८॥

When thou didst resolve upon consuming TRIPURA, the earth was thy chariot, BRAHMA' thy charioteer, the chief of mountains *(Mandara)* thy bow, the sun and moon thy wheels, and VISHNU himself thy arrow! What was all this preparation against a city that was but as grass before thee? Not that the will of the lord was dependent upon any instruments, but that thou wert pleased, as it were, to sport with those implements.

हरिस्ते साहस्रं कमलबलिमाधाय पदयो
र्यदेकोने तस्मिन् निजमुदहरन्नेत्रकमलं ।
गतो भक्त्युद्रेकः परिणति मसौ चक्रवपुषा
त्रयाणां रक्षायै त्रिपुरहर जागर्त्ति जगतां ॥१९॥

When HARI (VISHNU), who was daily in the habit of worshipping thy feet with a thousand lotuses, found on a certain occasion that the number was short by one, he plucked one of his lotus-eyes to fill up the want. Then did the fulness of his faith, thus tried and approved, become, by means of his wheeled body, the watchful principle of the world's conservation.

क्रतौ सुप्ते जाग्रत्त्वमसि फलयोगे क्रतुमतां
क्व कर्म्म प्रध्वस्तं फलति पुरुषाराधन मृते ।
अतस्त्वां सम्प्रेक्ष्य क्रतुषु फलदानप्रतिभुवं
श्रुतौ श्रद्धां बध्वा दृढपरिकरः कर्म्मसु जनः ॥२०॥

The sacrifice being ended, thou alone remainest as the cause of reward to its performers. How can a work that is finished and has ceased, be efficacious afterwards, except because of thy worship? It is accordingly only by looking up to thee as the pledge of reward in sacrifices, and by reposing faith in the *Vedas*, that a person can be said to commence a great work.

क्रियादक्षोदक्षः क्रतुपति रधीशस्तनुभृता—
मृषीणामार्त्विज्यं शरणद सदस्याः सुरगणाः ।
क्रतुभ्रंशस्त्वत्तः क्रतुषु फलदानव्यसनिनी
ध्रुवं कर्त्तुः श्रद्धाविधुर मभिचाराय हि मखाः ॥२१॥

Although DAKSHA* so perfect in works, and lord of all creatures, was the offerer—although *Rishis* were the priests, and gods the assembled partakers of the sacrifice, yet was it interrupted and rejected, and DAKSHA himself destroyed by thee; for such oblations as are made without faith in him, who is the giver of rewards in them, are productive only of evil.

* DAKSHA was the father-in-law of SHIVA.

प्रजानाथं नाथ प्रसभ मभिकं स्वां दुहितरं
गतं रोहिद्भूतां रिरमयिषु मृष्यस्य वपुषा ।
धनुष्पाणेर्यातं दिवमपि सपत्राकृत समुं
त्रसन्तं तेऽद्यापि त्यजति न मृगव्याधरभसः ॥२२॥

When BRAHMA'* lusting after his own daughter (that had through fear of her father's attempt against her virtue transformed herself into a hind) became a stag, with a view to gratify his passion, thou didst bend thy bow against him; and when he had fled from thy fear, even into heaven, thy hands, like those of a chasing hunter, took him, and have not yet set him at liberty.

स्वलावण्याशंसाधृतधनुषमज्ञाय तृणवत्
पुरः प्लुष्टं दृष्ट्वा पुरमथन पुष्पायुध मपि ।
यदि स्त्रैणं देवी यमनिरत देहार्द्धघटना
दवैति त्वा मद्धा वत वरद मुग्धायुवतयः ॥२३।

If, O destroyer of TRIPURA, even after seeing the flower-armed† god of love reduced like grass instantly to ashes for audaciously hoping to overcome thee by making‡ PA'RVATI's beauty as his instrument, the goddess still looks upon thee as if thou wert subject to animal passions, because half of thy body is joined with hers, then, O thou self-controlling dispenser of blessings, young women must be deceived.

श्मशानेष्वा क्रीडाः स्मरहर पिशाचाः सहचरा
श्चिताभस्मालेपः स्रगपि नृकरोटीपरिकरः ।
अमङ्गल्यं शीलं तव भवतु नामैव मखिलं
तथापि स्मर्तॄणां वरद परमं मङ्गलमसि ॥२४॥

Although owing to thy sports in the cemetery, with the devils as thy followers—the ashes of the burnt pile as thy ointment—and skulls as thy necklaces and drinking cups—thy disposition and very name must appear evil and be awful—yet thou art the cause of supreme felicity to all that call upon thee.

* BRAHMA' is the first person of the Hindu Triad and the creator of the universe..

† KA'MADEVA, the god of love, or animal passions, is supposed to use flowers as his shafts when he strikes lust into the hearts of men.

‡ PA'RVATI was the wife of SHIVA.

मनः प्रत्यक्चित्ते सविधमवधायात्तमरुतः
प्रहृष्यद्रोमाणः प्रमदसलिलोत्सङ्गितदृशः ।
यदालोक्याह्लादं ह्रद इव निमज्यामृतमये
दधत्यन्तस्तत्त्वं किमपि यमिनस्तत्किलभवान् ॥२५॥

Thou art verily that incomprehensible truth which the self-controlled devotees contemplate when they put their fingers to their nostrils and fix their thoughts, abstracted from all external impressions, within their minds, and when through joy their hairs stand on end, and they, as if immersed in the sea of delight, feel themselves happy, plunged in the waters of immortality.

त्वमर्कस्त्वं सोमस्त्वमसि पवन स्त्वं हुतवहः
स्त्वमापस्त्वं व्योम त्वमु धरणि रात्मा त्वमितिच ।
परिच्छिन्नामेवं त्वयि परिणता विभ्रति गिरं
न विद्म स्तत्तत्त्वं वयमिह हि यत्त्वं न भवसि ॥२६॥

Thou art the sun—thou the moon—thou the air—thou thyself fire—thou art water—thou art sky—thou the earth—and thou the spirit. With such expressions did the ancients define thy essence. But as for ourselves, we acknowledge that we know no substance which thou pervadest not.

त्रयींतिस्रोवृत्ती स्त्रिभुवनमथो त्रीणपिसुरा-
नकाराद्यैर्वर्णैस् स्त्रिभिरभिदधत्तीर्णविद्धति ।
तुरीयन्ते धाम ध्वनिभिरवरुन्धानमणुभिः
समस्तं व्यस्तं त्वां शरणद गृणात्योमिति पदं ॥२७॥

The mystical and immutible OM which being composed of the three letters A U M signify successively the three *Vedas* (*Rich, Yâjus* and *Saman*)—the three states of life (awaking, dreaming, sleeping)—the three worlds (heaven, earth, and hell)—the three gods (of the triad, BRAHMA', VISHNU, and MAHESHWARA)—and which by its nasal sound is indicative of thy fourth office as supreme lord of all—ever expresses and sets forth thy collective and single forms.

भवः सर्वो रुद्रः पशुपतिरथोग्रः सहमहां
स्तथा भीमेशानाविति यदभिधानाष्टकमिदं ।

अमुष्मिन् प्रत्येकं प्रविचरति देवश्रुतिरपि
प्रियायास्मै नाम्ने प्रणिहितनमस्योस्मि भवते ॥२८॥

Bhava, Sarva, Rudra, Pashupati, Ugra, Maha'deva, Bhi'ma, and I'sha'na, of these thy eight names, each, O god, is celebrated in the *Vedas* (or each the gods desire to hear.) With a humbled mind I bow and adore to thee who art called by these precious names.

नमो नेदिष्ठाय प्रियदव दविष्ठाय च नमो
नमः क्षोदिष्ठाय स्मरहर महिष्ठाय च नमः ।
नमो वर्ह्षिष्ठाय त्रिनयन यविष्ठाय च नमो
नमः सर्व्वस्मै ते तदिदमतिसर्व्वाय च नमः ॥२९॥

Reverence to thee, O god of meditation and austerity, who art nearest (i. e. to those that serve thee), and who art also farthest (i. e. from them that disregard thee)—Reverence to thee who art the humblest (i. e. to those that are humble), and who art also the greatest (i. e. to those that are high-minded)—Reverence to thee who art old (as the creator of the universe), and yet young, being independent of the decaying effects of age—Reverence to thee who art all, and in whom all things subsist!

बहुलरजसे विश्वोत्पत्तौ भवाय नमोनमः
जनसुखकृते सत्त्वस्थित्यै मृडाय नमोनमः ।
प्रबलतमसे तत्संहारे हराय नमोनमः
प्रमहसि पदे निस्त्रैगुण्ये शिवाय नमोनमः ॥३०॥

Reverence, O Reverence, to Bhava, who partakes chiefly of the *Rajas* quality for the creation of the world. Reverence, O Reverence, to Mrida, who partakes of the *Sattwa* quality for the conservation of the world and the happiness of men. Reverence, O Reverence, to Hara, who is principally moved by the quality of *Tamas* in the destruction of the world.

कृशपरिणतिचेतः क्लेशवश्यं क्वेदं
क्व च तव गुणसीमोल्लङ्घिनी शश्वदृद्धिः ।
इति चकित ममन्दीकृत्य मां भक्ति राधा
दरद चरणयोस्ते वाक्यपुष्पोपहारं ॥३१॥

How vast the difference between my understanding, capable of grasping only little objects and subject to the perturbations of the passions, and between thy everlasting glory, whose properties know no boundary!—Hence my faith having led me, who am fearful of thee, to this profitable exercise, casts me at thy feet with this verbal offering, as with that of flowers.

असितगिरिसमं स्यात् कज्जलं सिन्धुपात्रं
सुरतरुवरशाखालेखनी पत्र मुर्वी ।
लिखति यदि गृहीत्वा सारदा सर्वकालं
तदपि तव गुणानामीश पारं न याति ॥३२॥

O Lord, even if there were a heap of ink like a black mountain, were the ocean itself the inkstand, and did SARASWATI herself continue to write for ever with the twigs of the *Kalpataru** as her pens, having the earth itself for her paper, [*even if there were such a writer with such stationery, and to write for so long a time*] still would it be impossible to express the limits of thy qualities.

कुशुमदशननामा सर्वगन्धर्वराजः
शिशुशशधरमौले र्देवदेवस्य दासः ।
स्वगुरुनिजमहिम्नो भ्रष्टएवास्य रोषात्
स्तवनमिदमकार्षीद्दिव्यदिव्यं महिम्नः ॥३३॥

KUSHUMA DASHANA (PUSHPADANTA, or flower-teethed) the chief of all the *Gandharvas*, and the servant of the god of gods, who bears on his head the crescent of the moon, being in consequence of his wrath deprived of his greatness, composed this excellent hymn of the lord's glory.

सुरवरमभिपूज्य स्वर्गमोक्षैकहेतुं
पठति यदि मनुष्यः प्राञ्जलिर्नान्यचेता ।
व्रजति शिवसमीपं किन्नरैः स्तूयमानः
स्तवनमिदममोघं पुष्पदन्तप्रणीतं ॥३४॥

If a man, having worshipped the chief of gods, read with his hands closed together, and his attention fixed, this hymn, composed by PUSHPADANTA, and of certain efficacy as the one only means of emancipation in heaven, he will join the company of SHIVA, and will be adored by the *Kinnaras*.†

* A fabulous tree of mythological celebrity, which yields any fruits that are desired by any one.

† The *Kinnaras* were a species of celestial beings.

ART. III.—*Account of a Journey from Calcutta viâ Cuttack and Pooree to Sumbulpúr, and from thence to Mednipúr through the Forests of Orissa.* *By* LIEUT. M. KITTOE.

As the country west-south-west of Mednipúr, for upwards of four hundred miles through which the high road to Nagpúr and Bombay passes, is noted down even in the most improved maps as *terra incognita*, therefore, by most considered as such, a brief account of my recent travels in that direction may not be uninteresting.

I am unable, for many reasons, to give very minute details, first, in consequence of the hurried manner in which I had to travel; next, from the very inclement season during which I did so; and again, owing to the great reluctance which the natives of Orissa have to afford any information, and what is more, to their decided silence; it being (as I have always had occasion to remark) more than the life of an individual is worth were he to be detected by his chief in divulging the scanty resources of his country.

About the middle of April 1838, Captain G. Abbott having fallen an early victim to the deadly climate of the Keunjur and Mohurbhunj jungles, to the distracting knavery of the people he had to deal with, and the annoyance and exposure they caused him to suffer,* I was appointed to succeed him, and directed to proceed immediately to Sumbulpúr to take charge of the survey of the Mednipúr and Raepúr post road.

There then being no possibility of travelling by dawk by the post road with any degree of safety or comparative comfort at such a season, I resolved on proceeding viâ Cuttack and the valley of the Mahanuddí, through the Burmool pass and onwards by Boad and Sohnpúr, i. e. following the course of the river, as the surest means of obtaining the first necessary of life, viz. good water.

I left Calcutta for Cuttack by dawk on the evening of the 17th April, where I arrived on the morning of the fifth day. I travelled at night, and halted during the day at Mednipúr, Jullaisúr, Ballaisúr, and Bareepúr successively.

On reaching Cuttack I found so much difficulty in procuring bearers to take me to Burmool (where I expected a relay from Sumbulpúr) that I resolved on going on to Pooree, and from thence across the country to that place; but a set having at last agreed to go for something more than the usual travelling rates, I struck the bargain

* Captain Abbott commenced his travels early in January, 1838, was taken ill on the 22nd March near Keunjurgurh, and died two days after his arrival at Sumbulpúr on the 3d April following.

and sent them on to Badeswur, half way to Burmool. I went on to Pooree, where I remained three days, being completely overcome with the fatigue of so much dawk travelling, for it was but lately I had returned from my tour in Orissa in search of antiquities, coal, and minerals, &c. an account of which tour has already appeared in this Journal.

While at Pooree, I tried again to procure more coins, but having shewn too much anxiety, and paid too much for those I did get, on former occasions, the suspicions of the Brahmans and shroffs were excited, they would give no more, except a few sovereigns, shillings, six-pences, and some Goah coins, which from their inferior standard were unsaleable in such a market.

I did my utmost to procure facsimiles of the inscriptions in Juggernath temple, also of those in the Gondeechagurh, but was, as usual, unsuccessful.

The tide ebbing very low at that season of the year I was enabled to collect a great variety of marine shells, but few however were sufficiently perfect to be of any value, the violence of the surf destroying all the more delicate species.*

I left Pooree on the evening of the 26th, and reached Koordah early on the following morning. I took up my abode in a shady mango grove near the ruins of the old *Noor* or palace, in the vicinity of which are many modern temples all equally inelegant and unworthy of notice.

When at Koordah in the previous month of March, I was unable to visit the cave of PAUNCH PANDEB, therefore I determined to do my best on this occasion. About noon I proceeded on foot for a distance of a mile and a half, having to crawl in many places through the jungle thicket, and reached the foot of the ascent, which is by a broad path, at a spot where under some stately Bur and Peepul trees† I saw a very elegant image of SU'RYA, in his chariot with many horses, driven by ARUNA (his charioteer); I had no time to spare to enable me to make a drawing of it.

After ascending a steep path for a quarter of a mile, I found myself in a beautiful glen, in its centre is a small and rudely built temple through which flows a beautiful spring of fresh water; I was told that there is an idol of PARBUTTI' within, carved in the rock, from the navel of which the water flows, however I did not think it worth the trouble of examining, being more interested in the *Pandeb Gurha*.

* All that were of any use were presented to the Society, and have been placed in the cabinets.

† *Ficus Indicus* and *Ficus Religiosa*.

Having therefore refreshed myself with a copious draught from the crystal stream, I continued the steep ascent until I reached the top of the hill, I had then to descend some way on the steep southern face; when I reached the cave I was sadly disappointed, for it was a mere cleft in the rock, with "*asthans*" or seats for ascetics cut within the cavity; I had hoped to find some valuable inscriptions, but there were none, excepting a few short sentences, and the names of ascetics in various characters, from the old *Kutila* of the 13th century to modern *Ooreya* and *Devanagri*, which I did not think worth transcribing; I deemed it better to take rest in the cool cave, and recover if possible from the effects of my long walk under a burning sun, at the hottest season of the year, so that after admiring the beautiful and extensive view which the spot commanded of the sea and the intervening woody plains, I laid myself down to sleep for a couple of hours, which completely restored me; I then returned to my palkee, and resumed my trip towards Badeswur, passing near the hot springs of Atteiree.

As I left early in the evening I had time enough to see much of the country, which undulates considerably, and is thickly studded with trees and underwood. There is a gradual fall towards the Mahanuddí; from Pooree to the vicinity of the Koorda hills the country is exceedingly low and flat, but it then has a gentle rise, caused by that curious ironstone formation occurring every where at the foot of the hills of Orissa.

The hill of Koorda is a rock which has been pronounced to be sandstone, but I am by no means satisfied of this being correct; it contains large proportions of lithomarge and quartz, it does not occur stratified, but chiefly in irregular and disturbed masses, the interstices are occupied with a coarse red loam resembling brick dust; the stone is variegated and speckled, and in some parts of its texture resembles pumice stone, or brick kiln slag; it is with this that most of the temples of Orissa are built, for from its softness it is easily worked, besides which it possesses a quality rendering it very desirable in the estimation of the natives—its predominant color being red.

From the high ground (before reaching Atteiree) the numerous conical and isolated hills rising abruptly from the vast level plains present a very singular and striking appearance. That of Bankee, called *Mahapurbut*, is the most conspicuous; they would all appear to be of volcanic origin. I reached Badeswur at about 2 A. M., and continued my journey with my Cuttack bearers twenty-three miles further to Bailpara, where I put up in a mango grove during the heat of the day.

Had I reached Badeswur at daylight, I should most probably have remained for the day, as there are several pieces of sculpture worth drawing; there is also an ancient temple on a rock in the Mahanuddí, which I was unable to examine on my former visit in 1836-37 in consequence of the river not being then fordable; an account of what I then saw is to be found at page 828, vol. vii, (second part) of the Journal of the Asiatic Society, where there is also a sketch of one of the temples; accompanying is a drawing of an elegantly executed image of PARBUTTI, at the same place, which I made on that occasion; like most of the more elegant and ancient idols, it is of black chlorite, and well polished.

On arriving at Bailpara I found my escort and other persons whom I had sent on to accompany me from Burmool onwards by water, but the river being more than usually shallow, I was compelled to abandon the intention.

I continued my journey early in the evening, that I might be able, if possible, to visit some caves said to be near a small temple on the high conical granite hills called *Mooni Budra*, about six miles beyond Bailpara, but on reaching the hills I found myself too much fatigued to warrant my running (perhaps) a wild goose chase after them, such as I was led to do, when at Balaisúr, to the *Nilgurh* hills; I therefore passed on, reaching Burmool about 9 P. M. and found to my sorrow that the Dangur bearers, who had been kindly sent for me from Sumbulpúr by Mr. C. L. Babington, after waiting three days had that very morning left to return homewards, and to "mend" matters, my Cuttack men refused to proceed. With the pleasant prospect of having to wait two or three days in this wild place, with no other shelter than was afforded by the shady forest trees and my palkee, also a very scanty supply of eatables, I fell asleep, having however previously sent on a couple of village Paiks to try and overtake the bearers and bring them back.

The following morning my guard having arrived and procured me some milk and eggs, I selected a shady spot on the immediate bank of the river, at the entrance of the pass, where I placed my palkee, from which I had a fine view of the river and the valley. Where there is no remedy, there is little use in fretting, so I determined to make the most of a bad job, and covered the palkee with green boughs to render it as cool as possible, it kept the temperature down to 98°. I took a walk along the banks and succeeded in shooting a number of fine mullet, which this river is famous for. I set to work to cook some of them, my chillumchee serving as a frying pan, and a village handee for a boiler. I made a good

meal and fell asleep. On waking, I found myself in better luck than I had expected, the Paiks having returned with fifteen of the twenty Dangurs who had left, as I before stated. I immediately proceeded, and reached the top of the pass about 8 P. M., resting for awhile at Puddum talawo, on the spot where I had encamped when with my regiment in June, 1837, I then continued my journey as far as the Bunjara halting place, near Gussungurh, in the Boad country, which I reached at midnight. At day-break I left the high road and went to the river side at a village called Korasingha; I made my palkee as snug as possible for the day. A very fine Mahaseer was caught and brought to me by a fisherman, so that I had no fear of starving.

The village was almost entirely deserted, which I was informed is the case for many miles from the Burmool pass (which is the boundary between the estates of Boad and Duspalla) to within a few miles of the town of Boad. The whole country has been almost laid waste since 1836; the Raja's followers lay the blame to the Kunds and their chief Nuncumkonwur, who inhabit the mountains running parallel with the river as far as Sohnpúr, at an average distance of four miles, and then recede in a southerly direction towards Gilleirí in Gúmsúr; the ryots, on the other hand, attribute the impoverished state of the country to the tyranny and misrule of the Boad Raja, and further assert that the Kunds were driven to aggression by his treachery and injustice.

I passed the day as well as the heat (at 115° with a fierce hot west wind) would permit of; I had not felt such since my quitting the North-western Provinces; it was an unpleasant contrast to the cool (south) sea-breeze prevailing on the other side of the mountains.

I resumed my travels in the early part of the evening, and reached Rumbagurh about 10 P. M. where I halted for several hours to allow the bearers rest; it is a miserable place, with indifferent mud walls and watch towers, but is deemed a *gurh*, or stronghold.

About 2 A. M. I continued my trip, intending to put up at Boad, but it being very late before I reached a small village two miles nearer, I thought it best to avail myself of the fine shelter afforded by a mango grove on the river side.

I suffered a great deal during the night from feverish symptoms, the effects of exposure, and so sudden a change of climate; I had little or no sleep, so that I had an opportunity of observing the country in the immediate vicinity of the road. There is much waste land, which appears to have been lately under cultivation, yet there is a far greater proportion of jungle and forest, having the same features as that of

other parts of Orissa. The stratum of soil is generally very thin, the gneiss and granite rocks protrude through it in all directions, in some places rising into small hillocks, in others, appearing in continuous and gently undulating pavements (as it were) for considerable extents. I neither saw nor heard bird nor beast, except the shrill and disagreeable note of a large species of *Caprimulgus*, which swarms throughout the forests. I was sadly annoyed during the day time, with the incessant, and distracting noise of an insect called "*jhinkare*," (the *chicādā ?*)

The Mahanuddí at Korasingha was broad, with a sandy bed; at this place it is divided by numerous small islands, thickly wooded, the bed is rocky throughout; the navigation during the rains must be very dangerous. The rocks are apparently granite, and present a very curious appearance, for in many places the different kinds of which granite is composed are to be seen in serpentine strata distinct from each other, the talc adhering to the quartz and felspar in large masses—all the rocks are more or less in a decomposed state; garnet crystals are common, and very beautiful; garnets of a small size are found in the sand; of a number I had collected on a former occasion near Cuttack, some were pronounced by a native jeweller to be rubies. I was informed that poor people gain a livelihood by seeking for gems, and that rubies of some weight are occasionally found; the purchasers prove them by heating them to a red heat, and if when cooled they have retained their color, they are valued accordingly.

The thermometer this day did not rise above 110°, I consequently had some little rest, and continued my journey early in the evening, reaching Boad before sunset. I was detained some time on account of the guides not coming; this was designed on the part of the Raja, who is very uncourteous to any Europeans from whom he may have no chance of gaining anything; I had sent to him in the morning to announce my arrival near his capital, but he did not even deign to send an answer or a single Paik to attend upon me; his conduct was very different when our troops were parading the country the previous year. The impudence and haughtiness of these semi-barbarians is proverbial; they were treated with much less ceremony by their Marhatta rulers than by the British Government; forbearance on our part is considered weakness by them, but at the slightest shew of resentment they are ready to cringe at your feet. I had to wait upwards of half an hour, during which period I was pestered with complaints from oppressed ryots and *bunjara* merchants. Among the latter was an old man who had been in camp with us in 1836-37, to beg of the Commissioner to espouse his cause, and make the Raja, and Nuncumkonwur (the Kund

chief) restore his cattle and the value of his merchandize, which had been plundered from him near Gussungurh in 1835.

I made particular inquiries touching the practice of human sacrifice since we had rescued all their *Merriahs*;* I was assured that there had been no "*Merria pooja*" this year, but I have reason to doubt the truth of the assertion.

On my way out of Boad I remarked several old temples on which, as I have been since informed, are inscriptions; had I known of this at the time, I should certainly have stopped and transcribed them.

My bearers having informed me that there was a bye-path across country, by which eight or ten miles would be saved, I preferred going by it to following the course of the river viâ Sohnpúr to Sumbulpúr along the right bank; therefore upon reaching a large village called Sūgliah, I crossed over, and resting for a couple of hours travelled on till 7 A. M. and encamped in a miserable mango tope by a village called Mirlipullí, the Zemindar of which would neither come to me nor afford supplies, till at last the Dangurs got hold of him and brought him to me, begging I would keep him in durance until his Paiks should have brought what little was required. I had been obliged to leave my escort to follow after me, so that I was nearly helpless, I however followed the advice of the Dangurs and kept the fellow by me till every thing was forthcoming, and subsequently paid for.

This part of the Sohnpúr territory appears tolerably fertile, the country is undulating and rocky, but the water is very near the surface; there are numerous small wells about the villages, the water of which is drained by the *Dhankuli*, or tilt-pole. The soil has a very curious appearance from the great quantities of snow-white quartz and talcite; I picked up some fine specimens of talc by the mouth of a well; the people told me that it is to be found in very large pieces at some depth below the surface.

I experienced another hot day. Having to travel over some bad ground, I resumed my march at an early hour, and reached a large village at 10 P. M. I rested several hours, and then went on to Keuntapullí, a short distance before reaching which, I had to cross a tolerably steep ghat over the chain of low hills, which commencing near Sumbulpúr, run for many miles nearly due north and south, parallel to the river, and no great distance from it.

I encamped as usual under some fine tamarind trees by the river side. Having reached my ground at an early hour, I had plenty of time to look about me. The river for upwards of a mile is ex-

* Children intended for sacrifice.

ceedingly still and deep, it being confined between a line of rocks the strata of which incline at an angle of 45° and have a most singular appearance. The village is chiefly inhabited by fishermen, as its name implies, "*Keunta*" or "*Kewat*" meaning "fisherman," and "*pullí*" a "village," anglice, the "fisherman's hamlet." The Keunts of this place appear to be a very idle race, they angle all day and cast nets and spear fish at night. This latter operation is performed by the following means—one or more torches are burnt at the stem of a canoe, where a man stands waiting with spear or grange in hand, the canoe is either pushed or paddled along with the least possible noise by a boy at the stern, the fish are attracted by the glare of the torches, swim about near the surface, and become an easy prey to the expertness with which the grange is handled.

During those months in which the river is navigable, the Keunts have ample employment in transporting merchandize to and from Sumbulpúr, Kontillú, and Cuttack.

There is nothing remarkable in the appearance of the country about Keuntapullí; on the right bank there is much low jungle and a few small hills at some distance; on the left, the range of hills before mentioned are about a mile distant, the land intervening having a gradual slope towards the river; there is much more jungle than cultivation, for there are numerous water-courses and ravines interseeting it.

I resumed my march an hour before sunset, and reached Dhama about 9 P. M. I did not stop, having met a relay of bearers who had been sent out from Sumbulpúr, which place I reached at 3 A. M. the next morning, the 4th May, none the better for such constant fatigue and severe exposure, however I considered myself fortunate in having done so well.

I remained at Sumbulpúr until the 23rd of the month, for I was unable to carry on the survey in consequence of the sickly state of the establishment, every follower of the late Capt. Abbott having suffered more or less from the deadly climate of Keunjur; his Bengallee writer, a sepahee, and another servant, died, shortly after their arrival at Sumbulpúr; there were several others in a dangerous state who subsequently died on their way home. From this I learnt a lesson for my future guidance, not to employ more Up-country servants than could possibly be avoided; it is absolutely necessary to have a few trustworthy men to serve as a check upon the Ooreya portion, who, if not closely looked after, would lend themselves to the roguery and schemes of their kindred.

The town Sumbulpúr is thrice the size of any I have seen in any of the other states; it extends for upwards of two miles along the proper

left bank of the river of this space; the fort occupies about three-quarters of a mile. It is fast falling to ruin; the Raja no longer resides in the old *Noor*, (citadel, palace) which is occupied by some of his officers; there is a miserable garrison of a few ragamuffins dressed as sepahees, and some twenty or thirty suwars whose steeds are like Pharaoh's lean kind. The walls are in a very dilapidated state, having suffered much from the effects of the extraordinary flood in 1836. The bamboo thicket, which was cut down during the time the territory was in our possession, used to act as a breakwater, and protected the walls, which are very ill-constructed of unhewn stones. The ditch and swamp which defended the other three faces are in a great measure filled up and overgrown with weeds, and must render that quarter of the town very unhealthy. There are many good dwelling houses of one and two stories, built of stone; there are also many temples, but few of them have any pretensions to elegance, and the generality are covered with most obscene figures badly executed.

There is no appearance of any great trade being carried on, nor is there so much as the sight of such a large and populous place would lead you to suppose. Merchants concentrate here from Cuttack, Buddruc, Nagpúr, Bhopal, Chutteesgurh, and Sirgoojah, and barter their goods; those of the lower provinces bringing salt, cocoanuts, cotton cloths, spices, brass utensils, &c. exchange the same with those of the central for wheat, gram, lac, and cotton; gold in small lumps is also taken in payment, and occasionally diamonds. The only produce of the province exported, consists of oil seeds, cotton, and rice, which are taken by bullocks, and (during the rains) sent by water to the Mogulbundí of Orissa.

Sumbulpúr has always been famous for its gold and diamonds; as far back as 1766 a Mr. Motte was sent expressly by Lord Clive to open a trade in them, and to explore the mines, but was unsuccessful on account of the disturbed state of the country, and the inclemency of the season, he having arrived there in the rains; two other Europeans who accompanied him died of fever, and he was himself nigh losing his life. An account of his expedition is to be found in the 1st Vol. of the Asiatic Annual Register, p. 50, published in 1800. The perusal of this narrative would amply repay the reader for his trouble.

The people of the country are too apathetic and indolent to attempt to work the mines, or rather to seek for them; for the diamonds are at present obtained by washing the red earth (their matrix) which is brought down by the Heebe-nuddí, and empties itself into the Mahanuddí, some miles above Sumbulpúr, from the mountains to the north-east,

in which there are most probably inexhaustible mines of gems and precious metals; gold is found in many of the streams flowing from the gneiss rocks throughout these tracts, the Heebe among the rest.

Touching the state of Sumbulpúr, it was (previous to its dismemberment by the Marhatta hordes and its becoming subject to Berar) subdivided into eighteen "gurhs," or chieftainships, held in fief of the Lord Paramount, who resided at Sumbulpúr, and called therefore "*Authareh gurh Sumbulpúr*"; amongst these were, Boad, Sohnpúr, Gangpúr, Oodeypúr, Phooljur, Sarengurh, Sarinda, Banaie, Baumurra, Lehrapal, Rerhakhōl, and seven others, including Sumbulpúr proper; most of these however have long since thrown off their allegiance and ceased to pay tribute or to furnish their quota of "Paiks" (militia). Some of the smaller "gurhs" used to be held on very curious tenures, which I shall allude to more particularly in a future page.

Sumbulpúr lapsed to the British Government in 1827 by the death of the late Raja, but for some reason (with which I am not acquainted) they sought for an heir-at-law and conferred it on an obscure and aged Zemindar, and a perfect imbecile, who is now entirely in the hands of his crafty ministers. These people and the Brahmins possess the best lands, and obtain his sanction to all kinds of extortion; as a specimen of which, I am informed that *Zemindarí* leases are renewed every year, and on these renewals, or on the occasions of lands being transferred to another, the party favored has to give a "*Salamí*" or fee, and nothing short of gold is accepted; the farmers in their turn grind their ryots; the effects of such an unjust and oppressive system are every where apparent.

It is said that the Raja realizes 7,00,000 Rupees per annum, but 4,00,000 is perhaps nearer the mark, including valuable diamonds which are occasionally found; it is certain that were the province under proper rule, much more could be made of it, therefore it is to be hoped that on the demise of the present Raja, who has no children, the Government will avail itself of the opportunity and resume it; at present it pays us an annual tribute of 8,000 Rupees, 500 of which has for some years past been remitted in consideration of the dawk road being kept in repair, and the jungle in its immediate vicinity cleared.

I was somewhat surprised one morning while taking my ride to see three human heads stuck on a pole at the junction of two roads near the town; they were placed there in January, 1838, their owners having forfeited them for treason, though not without a protracted and severe struggle.

There are no antiquities at this place save a few fragments from the ruins of a Budhist temple, some thirty or forty miles up the river, which were brought some years ago for building purposes. I was told that there was an inscription on a rock in the middle of the river about a mile above the town; I went one morning to examine it, and found merely a few brief sentences and the name of a *Byragí* who had died there some few years ago. The spot is held sacred on account of the evil deity supposed to preside over the river, which is evidently very deep, being confined in a long narrow basin formed by the gneiss rocks which stretch across it in all directions. Some years back the Marhattas in attempting to carry away a heavy brass gun on a raft, it sank and every soul perished; the credulous inhabitants believe that the demon appeared on this occasion, and dragged them all into a fathomless abyss which is said to exist there.

During my stay at Sumbulpúr I endeavoured to collect as much information regarding the country lying between it and Mednipúr as I could; this was no easy matter, for the accounts I received were so contradictory that I determined at all hazards to explore the country, following the direction of Mednipúr as nearly as possible and keeping south of the old road. Every argument and persuasion were made by the Raja and his ministers to dissuade me; all kinds of dangers and difficulties were pictured to me, which failed in their intent, for I could plainly see that there was some object in view. Amongst the persons who exerted themselves most to deceive and dissuade me was an individual whom Major W———— (the Governor General's Agent for the South-western frontier) had sent with a view to his assisting my unfortunate predecessor, which he was capable of doing from his knowledge of the country; his anxiety was perhaps attributable more to a desire to prevent my hearing of the tricks he had been playing in the Baumurra district when awaiting his arrival, than to any other cause.

During my stay here I had searched for a good spot for erecting a bridge over the Mahanuddí, (if such a great work were ever undertaken) which I found very near the present ford and ferry; the river is there 4,500 feet broad in the rains, and there are huge masses of rock at convenient intervals right across, which would afford excellent foundations for either wooden frames or masonry to support a wire or an iron suspension bridge; I found the highest flood water mark to be about 47 feet above the level of the shallow stream flowing during dry seasons in the centre of the bed.

Before taking my final departure from Sumbulpúr, I made an outline sketch of the hills, which are distant at their nearest point fourteen miles, extending from Baumunsassun, about north-west, till they

vanish in the horizon to the south-east in the direction of Ungool; in this range, (the highest peaks of which are perhaps 1000 feet) there are several ghats, which was readily admitted. That of Baumunsassun, near which the present road passes, is the first, next to it is one called Kurorumma, then Oorsing, all north of the proper direction of Mednipúr, lastly the ghat of Burrorumma about eight or ten miles further south; it was by this latter (which had been visited by one of Mr. Babington's people) that I determined on proceeding.

My first march from Sumbulpúr was to a large village called Bahum, having many fine mango topes and good cultivation, chiefly sugar cane; the fields are irrigated from a large nulla called Maltaijoor, which rising in the adjacent hills empties itself into the Mahanuddí at Munesswur, a village about three miles below Sumbulpúr; its course through the plains (from the foot of the Burrorumma range to the Mahanuddí) is very circuitous, it is navigable during the heavy floods, but dry for the greater part of the year, except that a plentiful supply of excellent water is always to be obtained by digging in the sand.

The distance travelled this stage was eleven miles and three-quarters measured by the Perambulator, but it is certainly no more than eight as the crow flies, for on leaving Sumbulpúr, I was led for upwards of a mile in a direction at right angles to that I had ultimately to reach; I was then led considerably to the southward ere I gained the proper course. Such an account may excite surprise in the minds of those who have not visited these regions of knaves and savages, but so it is in reality.

Several small villages were passed a little to the right and left of the road; there is a good portion of arable and clear land in the vicinity of each, particularly of those nearer Sumbulpúr. One small village close to which the road passed, particularly attracted my attention, the huts being built on the bare white granite rocks, which have the appearance of so many terraces; on one of them I observed veins of quartz about an inch wide crossing each other at right angles, resembling a large cross—close to this was another curiosity in the shape of a Goolur tree *(Ficus glomerata,)* growing on the bare rock, on which the roots were spread and interwoven in a most curious manner; the main root appears to be sunk in a narrow fissure beneath the trunk: it has a most singular appearance. There is not much jungle except on the rocky and unfavourable spots, and the only large trees I saw were on a small hillock about one-third of the way, beside the village of Durriapullí, from whence to an elevated spot where there are rocks of micaceous schist the country has a perceptible rise, and undulates

considerably; from thence to Bahnm it inclines towards the Multaie;* the soil is firm, being a stiff sandy clay with much decomposed quartz, granite, and talcite, of which very beautiful specimens occur.

Notwithstanding the sky being overcast, the heat was very great; the thermometer in a tent exposed to the occasional sunshine, rose to 115°, but with tatties and under a shady tope we managed to keep the temperature down to 98°. I say *we*, for Mr. Babington and his assistant, Mr. Martin, having resolved on accompanying me as far as Burorumma, had sent on tents. My camp equipage consisted simply of a palkee and a couple of settringies,† one to spread, and the other to hang over a bough to serve as an awning for the purpose of screening me from the scorching sun. I had a small pony on which I rode occasionally to relieve myself and the bearers, also one Mussulman servant to cook for me, I had an escort of a havildar's party from the Ramgurh L. I. Bat^n. which I found of much use, I had also a Naik's party from the 19th N. I. which had accompanied me from Cuttack, and it was well I mustered so strong a party, as will be seen hereafter.

In the evening I sketched a rough outline of the Hills, in which at some distance north of the ghat I was to proceed by; I perceived a wide gap or break through which I was most positively assured by all the Raja's people that there was no pass. I had taken the bearing of this identical spot on a former occasion when it was pointed out to me as the Burorumma pass, so that I was convinced that further attempts were being made to deceive me; this made me the more determined to have my own way, which was best to be effected alone, so I took leave of my companions, persuading them to return; for although I cared but little for the exposure and privations I saw clearly that I should have to undergo, yet I did not wish to subject them to any. The next morning, the 24th May, I marched at an early hour, crossing the Maltai, north, half a mile from camp; for several miles I travelled through alternate woody and cultivated tracts, by an excellent broad path, in the direction of the gap before mentioned. I began to hope that it was the real ghat, and its appearance warranted the expectation that it was a very trifling one, but I was soon undeceived, the guide stopped short, for there was a tree felled and thrown across the path—the usual hint laid for a guide to lead the traveller from the

* The Multaie-joor "*joor*" is an affix to the proper name *Multaie*, meaning a nulla or torrent; for instance, Dhoba-joor, Bur-joor, Bramuní-joor, &c. *Khaí* and *Naul* are likewise affixes, having the same meaning, such as Khor-khaí, Seam-khaí, Rama-naul, Kussum-naul, &c. &c.

† Cotton carpets.

direct road. Upon questioning him, I received the usual evasive replies of "that is not a high road, it merely leads into the forest;" and "what do I know; I live at Bahum;" "I have not seen, &c. &c." I took the knave aback by asking him the name of the ghat I was going to, and insisting that that was it, pointing to the gap. Forgetting himself, he replied that that was the Baghloth ghat; he then admitted that the road led direct to it. I was obliged to strike off to the right, and travel for some miles along a narrow and winding path through a heavy Saul forest to the foot of the ghat, which is about a mile from a large village called Kundeswurí, belonging to Chúndro Bearer, a Kund chief who holds the adjacent hill lands (more by might than right) from the Baumurra Raja; this man has a few followers, who, united in one interest, set all the neighbouring Zemindars at defiance, and make frequent plundering excursions into the plains; he is much dreaded by all. The Kunds are however industrious, and if treated kindly, peaceable; but such is the dislike the Ooreyas entertain towards them, and the consequent annoyances and tyranny they exercise over them when they perchance fall into their power, that they are obliged to retaliate in self-defence; this is the case throughout the tributary mehauls in which there are Kund villages.

The Kunds of these hills have no turmeric cultivation, nor do they perform the horrid *Merria pooja*, which is in a manner connected with it.

The ascent of the ghat is by a narrow glen between two ridges of hills, those to the right being very lofty quartzose rocks; it is at first very gradual and easy, but higher up becomes very steep, continuing so as far as the summit, the whole distance being a little more than three-quarters of a mile. The road is difficult on account of the loose stones of all sizes which are strewed about; there were remains of fences and other contrivances for defending the pass, which had been constructed the previous year, during some disputes with the Sumbulpúr Raja, who summoned all his vassals to assist him, but the Kunds had the best of it, as is generally the case.

There is a fine view to be had here of the Sumbulpúr plains, but owing to the haziness of the atmosphere I was unable to see any objects distinctly enough to take their bearings, except the high peak at the north-western extremity of the range of hills; following the course of the Mahanuddí, distant six miles south-east of Sumbulpúr, it bears 70° south-west; the soil at the top of the ghat is a hard red loam with much quartz, gneiss, and hornblende. I here remarked two heaps of stones each at the foot of a tree, which reminded me of the tu-

muli the ancient Britons in the north of England used to construct over the graves of fallen warriors, on which each traveller used in olden times to throw a stone on passing by; upon inquiry I found that these were of the same nature, the like practice existing. Those which I allude to, are over the remains of two chiefs who fell in battle on the spot. I had often remarked similar tumuli in the Kund districts, also in other parts of India, for it is in some places customary to heap stones or bricks on spots where persons have been killed by wild beasts.

Two miles and a half beyond the ghat I reached my encamping ground, at the village of Burorumma. There is a gradual fall the whole way; the path is through a thin forest of large Saul and other timber trees with no underwood. Much ground has been lately cleared in the vicinity of the village which is situated at the head of a large valley extending for many miles in a south-easterly direction at the back of the range of hills before described; there are many fine mango, tamarind, jaumun, date, and other trees around the village; it is nearly depopulated owing to the misrule of the chief (Chundro Bearer); the sepahees and peada whom I had sent some days previously to prepare for me, had been nearly starved, the chief having forbidden supplies; a little firewood and some milk were however brought to me. I rigged out a shed with my carpets, palkee, &c. under the trees near the village, and hoped to have passed a tolerably pleasant day, but as soon as the sun got high myriads of small insects (?), descended from the trees and rendered it impossible for me to remain, for in addition to the discomfort their presence occasioned, their bite was painful: I was compelled to seek refuge in a ruined hut in which the thermometer stood at 106° 2′.

Shortly after my arrival I was visited by Chundro Bearer's eldest son, who came with a number of retainers armed with swords, matchlocks, and bows. He is rather a fine young man; he made many apologies for the supplies not being ready, and shortly sent us what was required. The retainers did not seem inclined to be over civil, several of them were intoxicated, one fellow in particular, who came just after the remainder had left, threw himself down close to my carpet and began raving, and from what he said, it was evident that they would have been glad to have found out what persons had recommended me to come by this route, and most likely have taken some means of revenge. To add to the discomfort of my camp followers, the people most effectually concealed the well or spring which supplied the village with excellent water; they were compelled to help themselves from a small well which did not afford more than a lotah full of bad water every four or five minutes.

Being anxious to push on, and get out of this inhospitable track, I packed up and resumed my march at 6 P. M.; as long as it was day-light we got on tolerably well, although the road had been obstructed for miles together with trees felled and thrown across, but as soon as the evening closed, our troubles commenced; the heat was oppressive beyond measure, and not a drop of water was to be found to quench the tormenting thirst my followers were suffering from; we had been led to expect some from the bed of a large torrent two coss distant from our camp, but upon reaching it, the guide and coolies all denied there being any. A poor coolie was taken to task by one of the Kunds for offering to point out where it was. I would have resented this in the most summary manner, but I knew that we were completely at their mercy, for they had taken us off the road, and were leading us over a most rugged path, and whenever chance led us on to the high road, (which was a very excellent one), they halted, and pretended they had lost their way; then after hunting for some time, led us again into the villainous track by which, after five and a half hours' toil we reached Jaumunkeera. This is a large village in the centre of the valley, which is here open and well cultivated; the distance was nine miles and three quarters, and by the better one which the Moonshee followed, only eight and a half. We rested in a paddy field near the village till 4 o'clock the next morning (25th May) at which hour I attempted to move onwards, but the Kunds tried to detain me, refusing to allow the Burorumma coolies to go on with us, or to get others that day in their room. I would not be trifled with, and commenced my march. Their next step was to deny any knowledge of the road; it then became high time to put a stop to this insolence; I brought the ring-leaders to their senses with the help of the "argumentum bacculinum," a road was pointed out, and a relief of coolies arrived forthwith. I had proceeded about two miles, when I discovered that the guides were playing me the same game that those had done on the previous night; I met a Paun* who was just returning from the very place I was proceeding to, so I promised him a reward, and took him with me. He soon led me on to a good, and much frequented road to Burghat, the spot where supplies had been collected for me by the Baumurra people, and which I reached at 11 A. M. much fatigued, having travelled eleven miles. I took shelter in a hut that had been prepared for me by the sepahees, of green boughs, on the edge of the Burghat nulla; in this I passed the day with comparative comfort; some of my people, however, suffered very severely from thirst and exposure to the sun.

* A person of low caste; they make the best guides, for being given to make plundering excursions, they are acquainted with every nook and corner.

The country through which I travelled this day is open, with evident traces of having been in a much more prosperous condition at no distant period. There are extensive pasture lands, and large herds are brought from long distances to graze, the herdsmen living in temporary huts, and having enclosures annexed to protect the cattle from wild beasts. I observed many traces of recent cultivation, and occasionally fields freshly ploughed, although I could not discover a single village the whole way, I was also assured that there were none; I am, however, convinced that there are many at no very great distance, hidden by the intervening jungle, beyond which I could see clumps of mangoes, tamarind, date, and tarri trees, which latter seldom occur except in the vicinity of habitations. I felt moreover convinced that there must be other roads up this fine table land than that by which I came. On inquiring of the Baumurra people, and of some bunjarahs I had met on my way, I found that my surmises were correct, not only in this particular, but as to the Baghloth ghat, which, as I have before stated, had been kept a secret from me. I determined to satisfy myself of these points by directing the guard of regular sepahees to return by the other path and by the ghat; I sent them the next day from Deogurh, and I subsequently received a report from the Naick of the guard who stated that he had passed through many villages with abundance of water, and that the ghat was perfectly easy, with an excellent path; the very reverse of what the knaves of guides had told me. There is no habitation any where near Burghat, which is merely a pass (as the name implies*) leading from the high land before described, down to the less elevated tracts of Baumurra, all inclining towards the Brahmení river, into which all the torrents (that of Burghat among the rest) empty themselves.

My people were too much fatigued to allow of my resuming my march that evening, so we lighted numerous bonfires round the camp to keep off wild beasts, and passed the night where we were.

(To be continued.)

* "*Ghat*" or "*Ghatti*" means a pass, they are affixed to proper names, such as "Kend-ghatti" the Kend (or ebony tree) pass; "Sher-ghatti" the Tiger pass; "Kussum-ghat" the Kussum (tree) pass; "Burghat" the Bur (tree) pass, &c. &c.

ART. IV.—*Proposed publication of Plates of Hindu Architectural Remains.*

To the Secretary of the Asiatic Society.

SIR,—In the sixth volume of the Journal of the Asiatic Society, page 453, in an article from the able pen of our late Secretary, touching the sculpture at *Sanchí* near *Bhilsa*, he expresses his opinion that it would be of advantage to publish a series of Hindu Architectural Remains,* and I am aware wished to introduce the subject in the Journal, but the difficulty and expense attending the preparation of plates, requiring even little labor, prevented his doing so. Latterly, at his request, I prepared several lithographs representing different pieces of sculpture which I collected during my different tours in Orissa; having many more in my portfolio which might prove interesting to some of your readers, I propose (should you be of this opinion, and it meet with your approval) to publish occasionally one or two plates, with such explanatory notes as I may be able to give.†

In the present number I have given a drawing of an elegant piece of sculpture which I copied at Badeswur, in the valley of the Mahanuddí, and which I have alluded to at page 370.

This image represents the goddess DURGA as PARVATTI', wife of MAHADEVA (SIVA), and daughter of the Hymalya mountain in the *Parvatti Avatar.*

The figure, though mutilated, shews that the different emblems named were originally present. In one of her right hands she holds the *Nag-phans*, or serpent noose; the other (which is broken off) she holds up in assurance of no evil intention, it is called अभय "*a-bhai*," which means "without fear," or "fear not;" in one of her left hands was the *Unkoos* (elephant goad), part of the staff of which still remains on the arch; in her second she held the *Pudma*, or lotus, by the stem, part of which is destroyed;—I speak positively on this head, having seen many images of the same form in which the different parts wanting in this example were present excepting the *a-bhai.*

This deity is (like most others) presented as standing on an expanded lotus, with the *Singha*, or lion, and the *Vahun*, or vehicle of SIVA, at her feet.

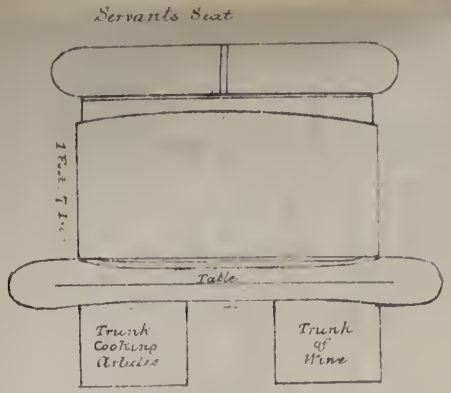
* "It would be well worthy of the Asiatic Society to publish from time to time in England a volume of Hindu Architectural Remains from the materials in its possession; to this reference could always be made, and those who regarded only the works of Art, would find a volume to their taste, kept distinct (like the Physical Volume,) from the graver subjects of the Society's Researches."

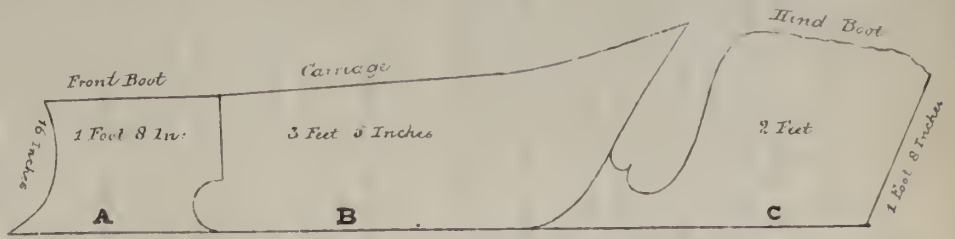
† We most gratefully accept Lieut. Kittoe's proposal.—EDS.

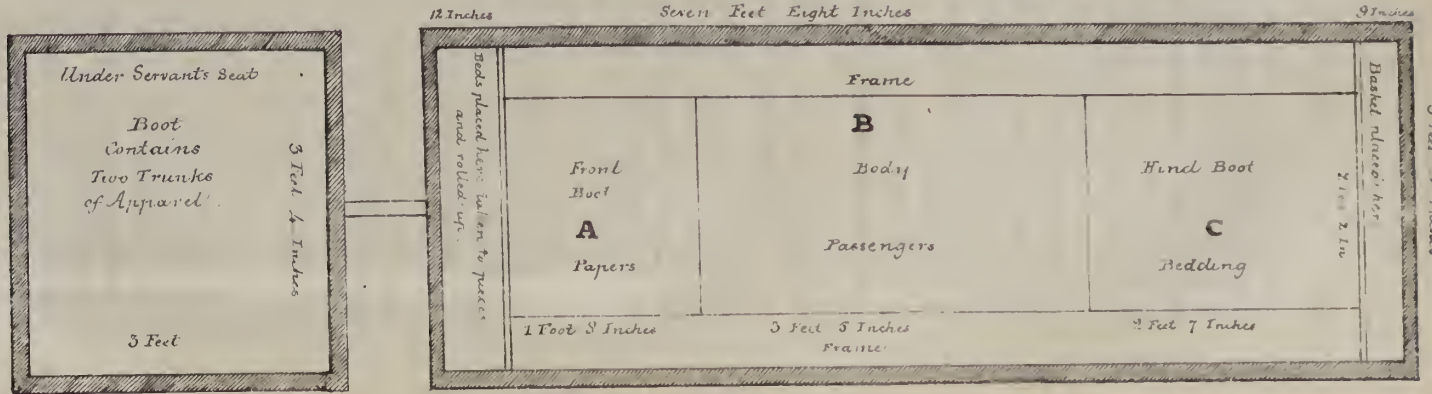
Plan and Elevation of the

BODY and FRAME and SECOND FRONT BOOT of the CAMEL CARRIAGE

belonging to R. M. Bird Esqre







The four female figures holding the emblems of the *Nag* (hooded serpent) the *Pudma* (lotus), the *Gadha* (mace), and the *Trisool*, (trident), represent *Sakhis*, or attendants. The two upper figures represented as flying with cornucopiæ and wreaths in their hands, are probably intended for bearers of offerings, and called *Powrí*, but have no other purpose or meaning than for ornament to the entire piece of sculpture; such additions were entirely at the discretion of the sculptor.

The idol is about three by one-half feet (every part inclusive,) and is worked in black chlorite; it is exceedingly well executed, the jewels and the embroidery on the drapery are most exquisitely cut, and the *tout ensemble* may be pronounced a beautiful specimen of Hindú sculpture.

M. KITTOE.

Art. V.—*Papers relative to the New Coal Field of Tenasserim.*

No. 1.—*Report on the Coal Field at Ta-thay-yna, on the Tenasserim river, in Mergui province. By* J. W. Helfer, M. D.

Locality.

This newly discovered coal field is a part of that great coal deposit which occupies a considerable part of the Tenasserim district, in Mergui province, and which beginning from the old town of Tenasserim, to judge from geognostic appearances, extends about forty miles to the north, about fifty towards the south-east, and to an unknown extent towards the north-east.

Face of the country.

All this tract of country seems to be a great basin encircled by primitive, but much more transition, formations, which in isolated ranges emerge also in different parts of this basin, but which are easily traced and recognized as the offsets of their more distant relations.

The present coal field lies at the southern skirt of one of these transition ranges, and the country to the south of it is apparently a great plain, densely covered either with tall forests or bamboo jungle; the Tenasserim river winds through this plain in a direction chiefly from north to south.

Geognostic features.

In the neighborhood of the present locality no geognostic signs of the existence of a coal bed are to be observed on the river side, save opposite to the village there is a large lump of a formation holding the medium between red sandstone, variegated sandstone, and slate clay—in this country a certain prognostication of the vicinity of coals. The river banks shew besides sandstone, conglomerate, plastic clay, marl, and alluvium; the upper stratum, of a thickness from fifteen to thirty feet, is almost universally tinged

red or ochry, by the abundance of iron oxyde with which it is impregnated.

Locality of the section lying bare, extent, thicknes.

The coal is visible either in its native locality on the side of a monsoon rivulet, or is to be found in pieces in the bed of the same rivulet.

This deposit is neither covered with porphyry, nor red sandstone, nor arenaceous beds belonging to intermediary formations; above it are only placed alternating beds of slate clay, either bluish grey or whitish, either friable or compact, and then carburetted Brand-striefer, and these strata taken altogether are not more than three and a half feet in thickness, above which rest the above mentioned iron-tinged earthy clay and alluvium. At this place the coal may be calculated to be seventeen feet below the surface on an average.

On the sides of this rivulet or channel, dug out by the impetus of the water, a section is exposed of fifty-four feet in length, and the same formation is traceable more than one mile to the north, and six west.

The thickness of this coal stratum is as yet not ascertained, on account of the water accumulating in the rivulet, the rainy season having begun; but it must be considerable, as at a depth of six feet no other alternating formation has been found. In consequence of this the nature of the sub-stratum cannot be yet determined.

This stratum runs nearly in a direct line from north to south, and dips under an angle of 26° east to the horizon. In two places it is contracted, in the rest uniform.

Mineralogical classification.

It is difficult to classify exactly this coal, on account of its modifications in different pieces. It belongs to the sub-genus black coal, but there are several species even in the seven tons which have hitherto been brought to light.

Some pieces participate greatly of the character of Cannel-coal, these having a resinous lustre and a flat conchoidal fracture; the pieces nearer to the surface have again more of the character of slaty coal, with a slaty fracture, fragments trapezoidal; the greatest number, however, hitherto observed refer it to glance coal, sub-species pitch coal, being massive, in botryoidal loam, with a woody texture, fracture large, perfectly conchoidal, fragments sharp-edged, undeterminated angular. The dendritic texture is a peculiar feature of this coal, not observed in any of the other coal species hitherto found in the Tenasserim provinces.

Chemical analysis of the coal.

A hundred grains of the coal previously reduced to small pieces were placed upon a platina sheet, and put over a lamp fed with alcohol; on becoming red hot, they baked slightly together, and on being removed from the fire assumed an iron grey co-

lour; one hour and six minutes elapsed before the hundred grains were totally consumed, the residuum was greyish ashes—from 100 parts 2·8 remained of them. The ashes subjected to chemical analysis were found to consist of *silica* and *alumina*, with scarcely a vestige of iron.

The coal considered in a practical point of view.

1. Generally speaking the coal is very good; but one great defect cannot be concealed, and this is, that some parts of it are highly pyritiferous, the pyrites intersecting it in thin laminæ of a silver-white, somewhat yellowish colour. Fortunately only some parts are thus deteriorated, but even these it is to be hoped will not be lost, as the thin layers of pyrites are easily separated; that part of the coal which cannot be conveniently rendered destitute of this bi-sulphuret of iron ought to be rejected, which necessary selection will have an influence, perhaps materially, upon the price of the coal.

We can at present speak only of the coal near to the surface and exposed partially to atmospheric influence, but it is to be hoped that the coal will be much purer the farther it is from the surface.

2. The pure coal (free from pyrites) burns freely and open; transformed into coke it bakes a little together. It emits in the beginning copious flames, which are blackish grey, and unmixed with sulphuric vapours.

General results.

a. That the coke of this coal is well adapted for smithy purposes.

b. That the coal (excepting always the pyritiferous strata, especially near to the surface) is remarkably pure, and fit to burn as fuel in chimneys.

c. That the coal consumes slowly, maintains a considerable degree of heat, and leaves a residuum of only three per cent at the highest, and that it is therefore adapted for steam purposes.

d. That it is inferior to the Cannel coal on the little Tenasserim for the generation of gas, on account of the smaller per centage of bitumen.

Locality with reference to access, transport.

The locality for transport is very favourable; and the greatest advantage consists in the almost total absence of land carriage.*

The present coal field lies on the western side of the Tenasserim, 1712 paces following the road, and probably not more than 400 fathoms in a straight line from the river.

The Tenasserim notwithstanding its long course, continues to be a mountain stream even when already under the influence of the tides. As such it has a rapid current, numerous shallows, annually changing banks, and shifting shoals. During the dry season it is at the place

* Sic in M.S.—Eds.

the nearest for the embarkation of the coals impracticable for boats drawing more than seventeen inches; in this part of the river the coals will therefore probably be transported upon rafts of bamboos. After the confluence of the higher and lesser Tenasserim the river increases considerably in depth.

Captain R. Lloyd surveying the lower part of the river last year, was of opinion that vessels of 100 tons burthen might go up to Tenasserim town, but thinks it advisable to employ only vessels of a much smaller size.

Prospect of other localities nearer to the sea-coast.

It is very probable, judging from the formations, that the same field extends some twenty miles lower down the river, and that beds may be found still nearer the banks of the river; but under present circumstances the transport twenty miles more or less *by water* is scarcely of any consequence; experimental researches therefore would, besides being very expensive, prove precarious.

The existing formations (as far as they are known) to the west, and those in a parallel line on the sea-coast, preclude the hope of coal being found there.

History of this discovery.

Last year, in, March, when I first visited the banks of the Tenasserim, I was struck, in coming to its lower part, with the sudden change of the geognostic features of the country. The river instead of running for many miles through a mountainous country, its narrow bed inclosed between piles of granular talcose limestone, graywacke, greenstone, and transition porphyry, burst at once into an open country, the ridges of the above mentioned formations receding on both sides, and I found what I had missed for a long time—secondary formations; and what I desired the most—formations belonging to the great independent coal deposits. Having given up all hope of finding coal in the parts of the Tenasserim provinces hitherto visited, I was at once animated with strong hope of success at the sight of these promising features.

The consequence proved this time, in a conspicuous manner, the truth and exactness of geognostic principles, and I found successively three localities of coal, mentioned in my last year's report sub: N. A. B. A. C. of which specimens were sent up to Calcutta. However the coal then found was all of indifferent quality, and, besides, not favourably situated; the excellent coal discovered afterwards on the little Tenasserim belongs to quite a different system.

Convinced however of the existence of coal over a wide extent of that district, in fact expecting that the above mentioned plain through which the Tenasserim runs is a segment of a great coal basin, I

stimulated the Careans, the only inhabitants of that part of the country, to be assiduous in finding coal. I gave them samples of that mineral, which scarcely any one of them had seen before, and taught them to look for it in the beds of mountain torrents, on steep banks of rapid rivers, on parts of mountains or hills detached by the violence of the monsoon, &c., for they had generally imbibed the erroneous opinion that coal is only found on the summits of high mountains which formerly were in a state of combustion, and that coal is a species of cooled lava.

Fearing however that their natural apathy might prevent them from any exertion, I promised a reward of 50 Rs. to be given to any body who found coal of good quality not far from a river.

By a rather extraordinary coincidence, the present coal was found but a thousand yards distant from the place where I made the promise of the reward, and in the same village, the inhabitants of which accompanied me for three days in search after coal in the surrounding jungles.

A Carean of that village of the name of Ka-pho, penetrating two months and a half ago the thick forests in search of good ground for a plantation, came upon a small rivulet, and found coal partly at its bottom, partly protruding from its banks.

My lesson, but much more, undoubtedly, the prospect of the Fifty Rupees' reward, seemed not to have been forgotten. He took some pieces home, and kept them hidden for several weeks, not knowing if they were really coal, for the pieces which I distributed among the Careans were Burdwan coal of a different aspect. He consulted a friend afterwards, who advised him to go to Mergui and show the coal to me, but being apprized that I was absent (examining the Mergui Archipelago) the visit to Mergui was postponed. About a month afterwards a Burmese, of the name of Kho-baik, saw the specimens of coal by accident in a basket; he possessed himself of a piece, and hastened with it to Mergui to claim the reward for himself; he shewed it to the Assistant of the Commissioner in Mergui, and in this way the coal was brought to public notice.

(Signed) J. W. HELFER, M. D.

Mergui, *9th May*, 1839.

No. 2.—Report on the new Tenasserim Coal Field.—By Lieut. Hutchinson, *Madras Artillery.*

To E. A. Blundell, Esq. *Commissioner, Tenasserim Provinces.*

Sir,—Having visited the coal field lately discovered upon the large branch of the Tenasserim river, I do myself the honor to forward a Chart of the river from the Coal to Mergui, and beg to offer some remarks for your consideration.

The coal is situated in north lat. 12° 21′ 30″, and longitude about 99° 5′ east, distant twenty-nine miles, by the course of the river, from Tenasserim, or about sixty-five miles from Mergui; the distance in a direct line from Mergui is about twenty-eight miles in a west by south direction.

A small stream passes through the upper part of the coal bed, exposing part of a thick stratum of coal covered by three feet of clay slate, and from twenty to forty feet of sand.

The sand may be removed easily with any tool, but at the same time is so tenacious as to require no propping where springs do not exist, and the slate being only three feet thick shafts may be sunk with celerity and ease.

Whether the galleries will require propping is doubtful; but if so, abundance of timber for the purpose exists upon the spot.

Springs will certainly be met with at the level of the slate, but this must always be expected in a coal mine.

The Nulla is quite unfit for the conveyance of coal to the river, but, a level line of road may be formed with little expense.

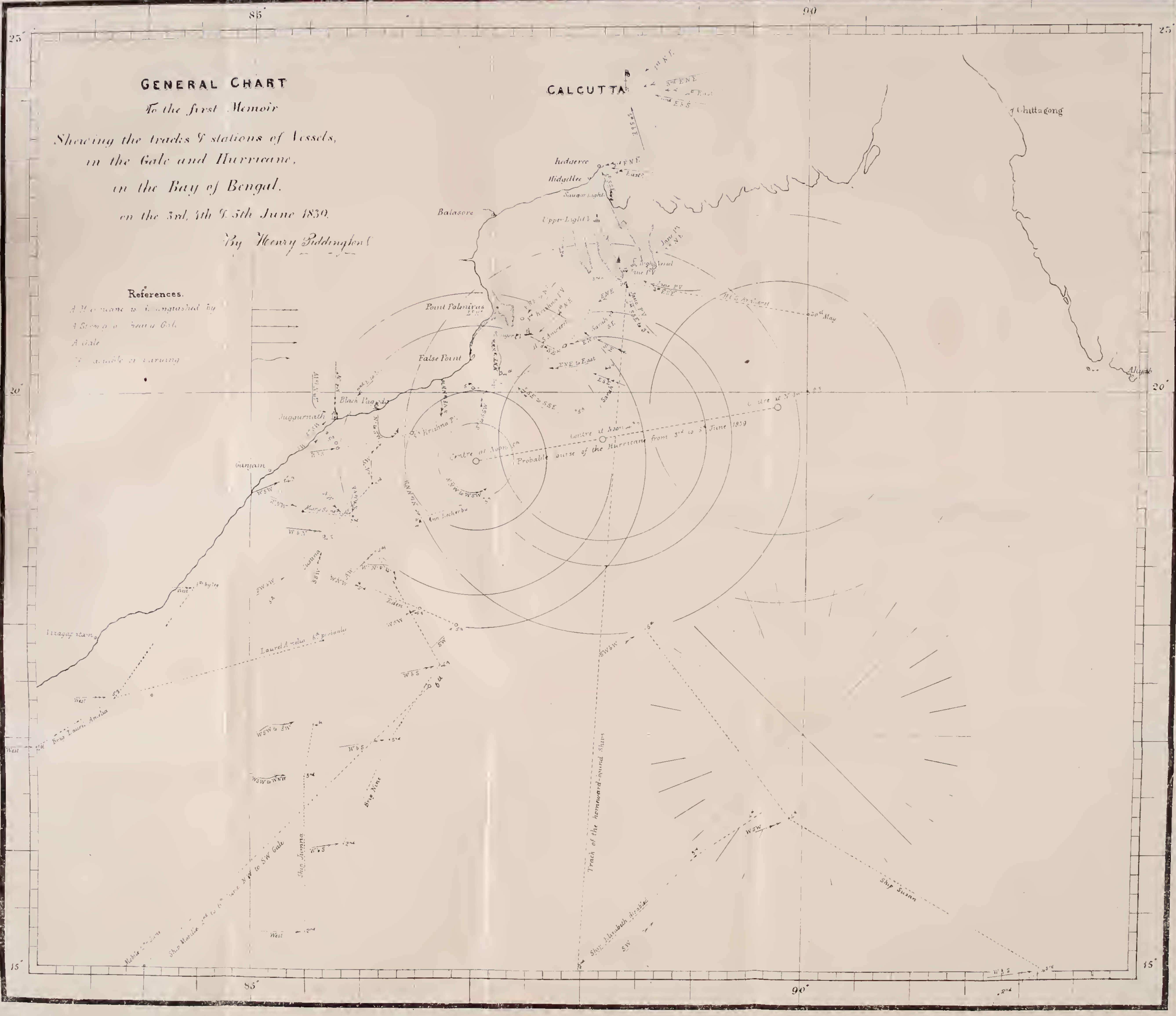
The coal is distant from the river about one mile.

The river may be ascended during the fine weather with an ordinary number of men to each boat, but the water is upwards of twenty feet higher during the rainy season, and it appears doubtful whether proper boats could be got up during that time, at any rate without the assistance of steam, or some adequate power.

The shallowest water at this time of the year (when it is lowest) is eighteen inches. The river is therefore navigable for boats drawing nine or twelve inches, and of thirty feet in length by ten in breadth, capable of carrying six or seven and a half tons.

Allowing one man to every ton of coal, four days will be required to bring the coal down to Mergui, and at least five to return with the boats; making the expense of actual transport one man's hire for nine days, or three Rupees per ton, exclusive of its carriage from the mine to the river.

Referring to the Chart, the question presents itself whether a line for a road could not be formed from the coal to some point near to the place called Peagune. The country between this and Tenasserim is


GENERAL CHART
To the first Memoir
Shewing the tracks & stations of Vessels,
in the Gale and Hurricane,
in the Bay of Bengal,
on the 3rd, 4th & 5th June 1830.
By Henry Piddington
References.
85°
90°
25°
20°
15°
CALCUTTA
Chittagong
Kedgeree
Hidgellee
Saugor Light
Balasore
Point Palmiras
False Point
Black Pagoda
Juggernath
Ganjam
Vizagapatam
Centre at Noon 5th
Centre at Noon
Probable course of the Hurricane from 3rd to 5th June 1839
Track of the homeward-bound Ships
Ship Susan
Ship Jumna
Brig Nine
Eden
Brig Laurel Amelia
Ship Elizabeth

mountainous, but the ridges run in nearly the same direction as would the road, and from the numerous large nullas falling into the river near to Peagune it appears possible that a practicable line might be formed. The distance is only fifteen miles.

A tolerably level railway across this part of the country would reduce the expense of actual transport to Mergui to one man for four days to every one and a half tons of coal, or to nearly one Rupee per ton, supposing the carriage is to be drawn by men; but by employing ponies the price is reduced to less than four annas a ton. Now in case of delay and extra power being required in some parts of the line, take the expense at three times the estimate, or twelve annas per ton, which is still only a quarter of that incurred in the transport by water; thus being a saving of 22,500 Rupees in favor of the road upon the transport of 10,000 tons of coal.

The best description of road for this country appears to be a single suspension rail of timber (as represented by figures 1 to 4 in the enclosed sketch) as being cheapest in construction, uninjured by heavy rain, easily repaired, and (by actual experiment) offering less resistance to the motion of carriages than any other form of road. It consists of a plank of hard wood, three inches broad by ten or twelve deep, supported on posts nine or ten feet apart, and varying in length according to the surface of the country passed over, so as to support the rail in a horizontal line. The rail is let into a notch cut on the top of the posts, and is adjusted by means of wedges driven in opposite directions between the posts and the rail; the resistance is reduced thirty per cent. by the addition of a thin plate of iron upon the top of the rail. A carriage having only two wheels with the load suspended on either side is represented in figures 1, 2, 3.*

A road on this principle has been tried with great success in England. A horse was found capable of dragging fourteen tons, exclusive of the carriage, during a good day's work where the rail was quite level. Figure 4 shews the manner of crossing streams and small ravines.

I have no doubt but these carriages would run upon a cable stretched from point to point should circumstances require it.

Models can be furnished if required. I have, &c.

(*Signed*) C. H. HUTCHINSON,

Mergui, 6*th May*, 1839. 2*d Lieut. Madras Artillery.*

(A true Copy.) E. A. BLUNDELL,

Commissioner in the Tenasserim Provinces.

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* We have not received Lieut. Hutchinson's sketch, but his description is nevertheless sufficiently intelligible. The subject is of so much interest that we deem it ex-

pedient to publish the annexed extracts from the description of Palmer's Railway, given in Hebert's *Engineer's Cyclopedia*, Vol. 2, pp. 425, &c.

"Instead of two lines of rail laid upon the ground, as heretofore, Mr. Palmer's railway consists of only one, which is elevated upon pillars, and carried in a straight line across the country, however undulating and rugged, over hills, valleys, brooks, and rivers, the pillars being longer or shorter, to suit the height of the rail above the surface of the ground, so as to preserve the line of the rail *always straight*, whether the plane be horizontal or inclined. The waggons, or receptacles for the goods, travel in pairs, one of a pair being suspended on one side of the rail, and the other on the opposite side, like panniers from the back of a horse. By this arrangement only two wheels are employed, instead of eight, to convey a pair of waggons; these two wheels are placed one before the other on the rail, and the axle-trees upon which they revolve are made of sufficient length and strength to form extended arms of support, to which are suspended the waggons or receptacles on each side of the rail, *the centre of gravity being always below the surface of the rail.* The rods by which the waggons are suspended are inflexible; hence, although the weights on each side be not equal, they will, nevertheless, be in equilibrio; as may be observed in a ship, which, being unequally loaded, assumes such an angle with the surface as preserves the equilibrium. Although an equal distribution of the load on both sides is desirable, it is not necessary. A number of carriages are linked together, and towed along the rail by a horse, as barges on a canal. Owing to the undulation of the country, the horse will sometimes be much below the rail, in consequence of which he is provided with a sufficient length of rope to preserve a proper angle of draught.

"Provision is made for trains of carriages that are proceeding in opposite directions, by means of "sidings" or passing places. With respect to loading, if both receptacles be not loaded at the same time, that which is loaded first must be supported until the second is full. Where there is a permanent loading-place, the carriage is brought over a step or block; but when it is loaded promiscuously, it is provided with a support connected to it, which is turned up when not in use. From the small height of the carriage, the loading of those articles usually done by hand becomes less laborious. The unloading may be done in various ways, according to the substance to be discharged, the receptacles being made to open either at the bottom, the ends, or the sides. In some cases it may be desirable to suspend them by their ends, when, turning on their own centres, they are easily discharged sideways.

"Among the advantages contemplated by the patentee of this railway, may be mentioned that of enabling the engineer, in most cases, to construct a railway on that plane which is most effectual, and where the shape of the country would occasion too great an expenditure on former plans—that of being maintained in a perfectly straight line, and in the facility with which it may always be adjusted; in being unencumbered with extraneous substances lying upon it; in receiving no interruption from snow, as the little that may lodge on the rail is cleared off by merely fixing a brush before the first carriage in the train; in the facility with which the loads may be transferred from the railway on to the carriages, by merely unhooking the receptacles, without displacing the goods, or from other carriages to the railway, by the reverse operation; in the preservation of the articles conveyed from being fractured, owing to the more uniform gliding motion of the carriages; in occupying less land

than any other railway; in requiring no levelling or road-making; in adapting itself to all situations, as it may be constructed on the side of any public road on the waste and irregular margins, on the beach or shingles of the sea-shore,—indeed, where no other road can be made; in the original cost being much less, and the impediments and great expense occasioned by repairs in the ordinary mode, being by this method almost avoided.

"A line of railway on this principle was erected, in 1825, at Cheshunt, in Hertfordshire, chiefly for conveying bricks from that town, across the marshes, for shipment in the river Lea. The posts which support the rails are about ten feet apart, and vary in their height from two to five feet, according to the undulations of the surface, and so as to preserve a continuous horizontal line to the rail. The posts were made of sound pieces of old oak, ship timber, and in *a*, the slot or cleft at the upper ends of the posts, are fixed deal planks twelve inches by three, set in edgeways, and covered with a thin bar of iron, about four inches wide, flat on its under side, and very slightly rounded on its upper side; the true plane of the rail being regulated or preserved by the action of counter wedges between the bottom of the mortices, and that of the planks. By this rail, on the level, one horse seemed to be capable of drawing at the usual pace about fourteen tons, including the carriages.

"The late Mr. Tredgold, whose opinion in matters of this nature will ever be entitled to attentive consideration, expressed himself very favourably to this invention in his *Treatise on Railroads and Carriages*:— "We expect (he observed) that this single railroad will be found far superior to any other for the conveyance of the mails, and those light carriages of which speed is the principal object; because we are satisfied that a road for such carriages must be raised so as to be free from the interruptions and crossings of an ordinary railway."

Art. VI.—*Memoria sul Renascimento e stato atticale della Medicina in Egitto, del* D. G. E. Mino.

Memoir on the Regeneration and actual state of Medicine in Egypt—Translated from the Italian of J. E. Mino, *Doctor in Philosophy, Medicine, and Surgery. Leghorn*, 1838.

(For the Journal of the Asiatic Society.)

We are indebted to Mr. W. H. Cameron for a copy of Dr. Mino's pamphlet, which was printed in Europe for private circulation, and contains many details worthy the close attention of all who take interest in the progress of general as well as Medical education.

Dr. Mino's essay affords full evidence of the failure of Clot Bey's system for the introduction of Medical science into Egypt. The causes of the failure are moreover explicitly and palpably exhibited. There was no penury of means, no paucity of teachers; all that the most princely munificence could place at the Bey's disposal he was permitted to command without controul. Still the tree produced no fruits, and this simply, because it was planted at the wrong end. They commenced where they should have terminated; namely, by the erection of a School taught in the vernacular language. It is difficult to conceive a more ludicrous attempt than that to teach me-

dicine to Arab pupils through European Dragomans, themselves destitute of Medical knowledge. Far different would the result have been, had the admirable principle of the Normal schools of Prussia and France been adopted in the first instance—had Clot Bey for the first four years contented himself by educating thoroughly a few clever youths through the medium of *his* language, and had he then employed them to impart, in their own tongue, the knowledge they had themselves acquired.

Such is the system which silently and unprofessedly has been adopted in the Calcutta College with a success which defies denial. If but few pupils have been educated, the completeness of their education is unquestionable; and each is now ready to be made the means of diffusing his own knowledge among his countrymen in the only dialects they understand.

In September next the Medical College of Calcutta ceases to be *exclusively* an *English* School, and will embrace, with its original Normal section, a secondary vernacular class, receiving instruction, through the Hindoostanee language, from native teachers, and numbering over 150 pupils. Let this class but prosper, as we doubt not it must, and then indeed we may triumph in accomplishing the inappreciable object of placing medical assistance practically within the reach of all classes of the Native population. Similar institutions will then spring up in all the great provincial cities, and thus to every village and hamlet will radiate the light of the most beneficent science within the acquisition of man.—Eds.

Prior to the reform introduced by the Pacha and Viceroy Mehemet Aly, medicine was in the same state in Egypt as in other parts of the Levant; it was, namely, in a state of absolute infancy, or to speak more accurately, in one still inferior to infancy itself. Not possessing schools or masters, books or dissecting-rooms, nor any other place of public or private instruction, the natives who devoted themselves to the care of the general health, following corrupt traditions, practised a blind empiricism which, mingled with a certain superstitious charlatanism, was more adapted to disseminate death, than to prevent the premature diminution of lives. Foreigners who there practised medicine were generally persons destitute of science and of conscience, and abusing the unfortunate licence given to all of calling themselves *Physicians*, they simulated the character that they possessed not, and thus profaned the sublime priesthood of Hygea, to the incalculable detriment of the wretched. The true and clever physicians, who for merit and legal qualification could be entitled such, in Egypt were very few, and often disregarded and forgotten; as not unfrequently happens in unpolished and illiterate nations, to the truly learned placed in counterposition to the charlatan.

Although the French claim for themselves the work of the regeneration of medicine in Egypt, it is undoubted, nevertheless, that the glory of the enterprise, whatever it may be, is due to the Italians. In truth, since Egypt began to breathe, which was about the year 1811, when Mehemet Aly completed his sanguinary struggle with the

Mamelukes—a year that signalized the commencement of new military reforms—the first roots, so to speak, of the medical laurel were planted there by Doctors Mendrici (Genoese), Raffaelli (Leghornian), Martinil (Pisan), Del Signore (Piedmontese), Cunha (ditto), Karacucci (Cattarese), Marnechi (Piedmontese), Gentili (of Ancona) Cervelli (Pisan), Morpurgs (of Trieste), Durando (Piedmontese), Calucci (Neapolitan), Lardoni (Roman), Vernoni (Piedmontese), and several others, all Italians, too numerous to be mentioned ; whereas in that long period the French could reckon no other countryman of their's than a certain M. Dussap, Apprentice-Surgeon.

Nor should, on the contrary, all the French professors be cited who followed the memorable expedition of 1798, in as much as those were days of battle, and those personages, albeit highly eminent, had no opportunity of mixing as much as was necessary with the aborigines, of coming in contact with the native physicians, and of diffusing, by word and example, the salutary precepts whereof we intend discussing. In fact, after their departure no vestige remained of their knowledge ; we mean, not a school, not a scholar, no prevailing system, no sensible sign was to be discovered, that denoted any tendency to the destruction of the abominable empire of empiricism and imposture.

The light of true knowledge illuminates in the end even the dimmest and most near-sighted. Hence, notwithstanding their deeply-rooted and numberless prejudices and antipathies, the Arabs finally discovered the difference that existed between European doctors and those quacks who for so long a period had usurped among them the name and attributes of physicians.

Mehemet Aly above all, who was then devising a bold, political reform of the state which had been placed in his hands by fortune and courage, convinced by experience, and by the dint of warm, benevolent suggestions (among which held the foremost place those of the Chev. Drovitti, Piedmontese) perceived the inestimable service that so grand an enterprise could derive from the Art of Healing suitably professed, and delayed not to make the talent of the European physicians contribute to his mighty undertaking.

In the year 1822 Doctors Martini, Del Signore, Cinba, and some others, were charged by him with the erection at Abou-Zabel of an Hospital, modelled and managed after the best European establishments of its kind, and were directed to lay before him a plan of a general systematic arrangement of the Medical Service in the Viceroyalty. This is in reality the era of the regeneration of medicine in Egypt ; and if the foundations of it were laid by Italian hands, we must legitimately conclude that the glory of having re-produced medi-

cal studies, and the practice of medicine in Egypt, exclusively belongs to them.

Nevertheless it is undoubted, that scarcely had the Italians taken the first step in the beneficent restoration (1824,) than the eminent Doctor Clot, a Frenchman in the Viceroy's service as Physician and Surgeon-General, succeeded, with several other sanitarian officers, countrymen of his, in completing the fabric thus commenced; and we are far from denying him our meed of well-merited praise, and avow and acknowledge with pleasure the very important services rendered by him to the science and to the country. But he *completed*, and did not *commence*, the work: this is what truth compels us to affirm distinctly. Especially as in all the improvements introduced by him, his designs were never disunited from those of Martini, Inspector-General of the Military Medical Service.

Au reste, when we allude to the regeneration of medicine in Egypt, we are very far from understanding that the science is as flourishing and diffused there as the phrase may seem *prima facie* to imply; for although there exists a remarkable difference for the better between the past and the present, it is undeniable, nevertheless, that the new plant has not yet produced that fruit which might have been expected from it. A mournful fact, but no less authentic, as will evidently appear from the particulars we are about to enumerate.

Having premised these brief observations on the historical part of the subject (for the correctness of which we ourselves carefully vouch, having been not only witnesses, but a party of what we relate) we shall now proceed to lay down, in separate paragraphs, those special points, from the assemblage of which results the actual state of medical knowledge in that country.

The establishment of an Hospital at Abou-Zabel (a village about twelve Italian miles to the north of Cairo, on the borders of the desert of Kanka) was, as we have stated, the first countersign of the regeneration of medical knowledge in Egypt.

Beside the salubrity of the air, and the abundance of water (although the latter is somewhat brackish), and all other conveniences requisite for the erection of such institutions, all wonderfully concurring at Abou-Zabel, this spot was selected especially because being close to the review-field of the new Egyptian troops, it might readily serve for the care of the invalids; and the Government would thus have before its eyes a practical example of the advantages that its armies might in time derive from that sort of sanitary establishments.

The edifice was erected A. D. 1822 on the ruins of ancient cavalry barracks: it was completed six years after (1827) when Dr. Clot,

recently charged with the head management of the Sanitary Department, made it the object of his most ardent solicitude.

The Hospital of Abou-Zabel, which surpasses in size, as it does in priority of existence, all similar buildings subsequently erected in Egypt, is a perfect square of 150 metres, every side consisting of a double row of saloons, divided by an intermediate corridor forming their entrance. There are thirty-two halls, each containing fifty beds arranged in a double row. The saloons are exceedingly lightsome and well ventilated, being illuminated each by sixteen large windows, which however does not debar the deplorable effects that result from the reunion of an immense number of sick in a single edifice—a constant proof that smaller Hospitals are preferable to extensive ones in all quarters of the globe.*

The area enclosed within the four sides of the building has been appropriated to the use of a Botanical Garden. In the middle of it is to be found a square house containing the Dispensary, Dissecting Room, Baths, Kitchen, a *Sakia*, or draw-well, and other ordinary complements of an Hospital.

The Botanical Garden is subdivided into two sections, containing an exact repetition of the identical plants. The first is appropriated to the study of Linneus' system, and the other to that of Jussieu's method.

The edifice is surrounded on three sides by a high wall, about a hundred paces distant from the body of the building. The vast tract of land intervening between the one side and the other is covered with trees and divers other plants, which abundantly supply fruits and other nutritious vegetables; it also offers a commodious promenade to the invalids. This exterior wall answers the purpose of *isolating* the establishment—an inestimable advantage for various reasons, especially in countries like Egypt, frequently infested with contagious maladies.

Although the Hospital of Abou-Zabel is chiefly intended for the

* We recommend this passage to the attention of the Municipal Committee, and of the projectors of certain Hospitals said to be intended for Calcutta. The new Cliuical Hospital just completed on the grounds of the Medical College will contain *eighty* patients. It is a square building on arches, 74 feet square, divided into three Wards with two intervening Corridors. The clear length of each Ward is 70 feet, the breadth 20 feet, the height 18 feet, and the Corridors each 70 feet long, 12 feet broad, and 18 feet high. The rooms are fully ventilated by lofty windows, doors, and spiracles. *This building has cost but* 8,000 *Rs.* In the plans adopted by the Municipal Committee an Hospital for *one hundred and twenty* patients is to cost 97,000 Rs., another plan for an Hospital for *twenty* patients is sanctioned by the Committee at 34,000 Rs. This may excite a smile, but let us not be unreasonable. It is peradventure wise to lodge the perishing pauper with the magnificence of a prince.—Eds.

military, still the indigent sick of all the surrounding villages obtain there gratuitous succour and advice.

The internal government of the Hospital, and in general all its various departments, were scrupulously modelled after the Hospitals of Europe.

The utility of the establishment in question being rapidly understood, with that evidence which is so necessary to influence the indolent spirits of the Easterns, other minor Hospitals began to be gradually instituted in various quarters of the country, there being at present six, beside several Infirmaries; viz. one at Cairo, named *Esbequich;* one at *Kassr-el-ain*, for the alumni of the elementary School-house; a third at *Furrah;* a fourth at *Damietta;* and the fifth and sixth at Alexandria for the army and navy troops.

Prior to the year 1834, there was no Hospital specially intended for non-military patients. The decree issued about that period by his Highness may be considered an interesting piece of novelty, because one of the Alexandria Hospitals, which had been originally destined for the navy, was then thrown open indiscriminately to all, whether Arabians or Christians, or of any other persuasion, as well subjects as foreigners, if destitute of means.

Although that was perhaps the effect of the wise Reformer's policy, it was nevertheless a remarkable token of progress, when we reflect on the antipathy that had for the past divided the Mahometans from the professors of every other creed.

With regard to the Hospital of Abou-Zabel, and the two others of Alexandria, especially that denominated *Ras-el-tim*, it can be affirmed, without flattery, that they are in a most satisfactory state at present, and that they might be honorably compared with many similar institutions in Europe. The others, mostly the work of Arabs, and imperfect copies of the former prototypes, still retain the impress of antique barbarism, and to them may be justly applied the words of the divine Poet:

"Non ragioniam di lor, ma garda e pass."*

Following the example of Constantinople, Smyrna, and other cities of the Levant, the European powers that hold commercial intercourse with Egypt established an Hospital in Alexandria for their respective subjects, with this difference however, that while in the above named cities each European nation has it own Hospital apart, in Alexandria, considering the minor number of European strangers, they deemed one Hospital, to be managed with common funds and laws, would

* "Let us not speak of them, but look and pass on."—Dante.

amply suffice promiscuously for all. The election of the Physician and other officials for this institution, is yearly made by the Consular body and other contributors by the majority of votes. Extreme is the neatness and regularity of attendance introduced into this Hospital, and we are gratified in being enabled to bestow our well-merited meed of praise on the directors of it, while we, at the same time, submit our hope, that in the election of the Physician, they may for the future value more than they have heretofore done, the intrinsic merits of the individual, and pay no regard to a spirit of vain nationality, which so often proves fatal to its unfortunate inmates.*

Regarding those infected with the plague, we shall have occasion to allude to them when speaking of the Lazarettos, in the important matter of sanitarial treatment.

The rare advantage of the Abou-Zabel Hospital induced Dr. Clot, Physician-General, to propose to the Egyptian government the institution of a Medical School for the formation of Native alumni, capable in time of succeeding the European doctors, on whom depended the medical management and attendance both of that head Hospital and of the other Infirmaries, as well as of the army. The body of European physicians then practising in Egypt, fortunately presented the number of Professors requisite to occupy the various chairs of the intended institute, and Dr. Clot wisely opined that so favourable an opportunity should be availed of to attain with facility and economy the object he had in view. The necessity of such an establishment was too evident for the Egyptian government not to second the proposal of the French Physician-General; but there were mighty and various obstacles yet to be surmounted.

* It would not be here inopportune to make mention of a small Greek Hospital, if it were completed, or worthy of observation. Hence we omit enumerating it among the Hospitals of Alexandria. Nevertheless we cannot refrain from commending the noble efforts of the Chev. Fossizza towards its erection and support, in which he has not yet relaxed.

Apropos of the above mentioned individual, we feel pleasure in giving a brief account of his merits and influence in Egypt.

The Chev. Fossizza, a wealthy Greek merchant of Mezzovo in Albania (Epirus), and now Consul-General of his Majesty King Otho, is one of the most distinguished personages who are about the illustrious Reformer, Mehemet Aly, on account of the high degree of confidence he enjoys, in as much as being wholly devoted to his wishes, he succeeded so well both in the administration of the state, and in the most difficult political circumstances of the Government, in comforting him, by seconding all his cogitations and devices, as well as by assisting him with his vast commercial knowledge in his traffic computations, and so by reviving in an extraordinary manner the home as well as the foreign trade; moreover, he is still more commendable on this account, because he uses his interest with the Pacha to forward the distribution of his princely munificence among the meritorious. Hence the Chev. Fossizza is generally esteemed by the Europeans as well as the foreign Consuls in Egypt.

The first obstacle was the impossibility of finding *eleves* who could speak French, Italian, or any other European tongue. This could not be overcome but through the means of interpreters, who might convey to the scholars the sentiments of the Professors. But in order that the interpretation of such mediums might be correct, they themselves should indispensably have been initiated in the science they were to convey: whence the interpreters were necessarily to be instructed prior to the *eleves*.

The second was to introduce among the Arabs the study of anatomy, which involved the dissipation of their religious prejudices, as to them it appears an enormous sacrilege to apply a dissecting knife to the remains of the defunct.

The third, finally, was the deficiency of books, instruments, and that multifarious assortment of other implements, which are essential for the first opening of such an establishment among a barbarous and unpolished people, like the Egyptians.

All these difficulties, albeit numerous and intricate, disappeared before the zeal of Dr. Clot, and of the head Physician and Inspector-General, Dr. Martini; and in a short period Egypt saw opened at Abou-Zabel a School of Medicine, which, although imperfect like every other infant institution, resembled Aurora, the forerunner of light, amidst the darkness of deep and disgraceful ignorance.

The first obstacle alluded to was surmounted by appointing various interpreters, sufficiently instructed in the oriental languages, and not totally unacquainted with medical pursuits. In the mean time, however, so as not to be perpetually obliged to have recourse to their assistance, which was essentially supplementary, a course of European languages, especially French and Italian, was commenced. Signor Ucelli (Piedmontese) and Signori Raffael, Authori, Sakakini, and Zaccara undertook and supported with honor this double duty of interpreting the lectures of the Professors, and of instructing the Arabian alumni in the European tongues.*

The second impediment was overcome by the firmness of the Government, and its well known indifference for religious opinions, as well national as foreign. For by suggestion of the European doctors the most influential Sheiks were informed that the opening of the dead for the benefit of the living, in place of being brutality and cruelty as they would fain have it believed, was a pious and philanthropic act; and they were shown that the Pacha in this respect had no intention of being annoyed; and so shortly disappeared all objections

* The respectable Signors should have commenced by studying medicine themselves.—Eds.

on that score, in so much that cadaverical dissections are now performed in Egypt with the same facility as in our own country.

The third difficulty likewise the Government remedied, by liberally supplying, at an enormous outlay, a splendid assortment of books, anatomical figures, surgical instruments, and every thing else requisite for the institute; whence we may affirm, without exceeding the truth, that in this it was rather extravagant, than parsimonious. A proof of this may be the Venus, made with wonderful nicety in Florence, by the chisel of the renowned Chev. Vacca Bellinghieri, and purchased for the Abou-Zabel School at the enormous sum of 3000 dollars and upwards.*

Thus surmounted the impediments that obstructed the accomplishment of this beneficent design, the next step was to regulate the course of studies, and to nominate the Professors. These operations had the following results.

1. Signor Gactini, Professor of general, descriptive, and pathological Anatomy, and of Physiology.

2. M. Beruard, of private, public, and military hygiene, and legal Medicine.

3. M. Duvigneau, of Pathology, and internal Clinics.

4. M. Clot, of Pathology and external Clinics, Operations, and Midwifery.

5. M. Barthelemy, of Materia Medica, Therapeutics, the Art of Formulas, and Toxicology.

6. Signor Celesia, of Chemistry and Physics.

7. Signor Figari, of Botany and Horticulture.

8. Signor Lasperaura, of Anatomical and Pathological preparations.

These were the Professors of the Abou-Zabel School at its first opening; but there were shortly after some remarkable changes which we deem superfluous to relate. We must however, for justice sake, remark, that besides the distinguished Dr. Clot, the two Italian Professors Celesia and Figari, (the latter a worthy pupil of the late Chev. Viviani), among the other above named, acquired especial esteem, and marked encomiums in the discharge of their duties.

We should be too prolix and fastidious, were we to enter into a detailed account of the various scientific improvements introduced into this School, and especially regarding the translation and explanation of the lectures, through the medium of the interpreters. We shall nevertheless observe, that at the close of every year a public examination was appointed to be held, at which the Arabian alumni should

* About 6500 Rupees.

give a trial of the progress they had made, in the presence of the first authorities, as well in their medical, as in their philological studies.

The result of those examinations proved, what will not surprise any wise judge of such events, viz. that the progress of those classes, notwithstanding the immense effort of the promoters, was not by any means remarkable. In truth, with the exception of a few lads, who succeeded in a middling degree, the mass of the scholars drank very shallow of those new and unusual sources of science. It would be long to enumerate all the causes of such disgusting deficiency individually, but we will note the chief ones: 1. The advanced age of the majority of the students. 2. The privation of those elementary and primary principles, that are a step to higher branches. 3. The fatal intricacy of intermediate explanations. 4. Arabian indolence and listlessness, which every now and then transpire in the character and habits of that race. 5. The secret and powerful influence of prejudices, which although sometimes apparently obviated, never cease by degrees to shoot forth. 6. In fine, the bad selection of some of the teachers; a notorious fact, which we in vain would attempt to conceal.

Dr. Clot added lately to this College a collection of objects connected with Entomology and Ornithology, aided by the rare abilities of the Turinese naturalist, Signor Lovis Regeo, who has acquired an honorable reputation both in Egypt and elsewhere, which we are happy to proclaim, for such and other similar collections forwarded abroad.

The nature and brevity of this memoir will not permit us, as we would wish, to give a minute account of the glorious labours of the illustrious young man just alluded to, in congregating the materials of such exquisite collections, as well of the extraordinary perfection for which his works are distinguished, considered even in the light only of mechanical preparation: we will not however for justice sake, and to satisfy a praiseworthy love of country, omit to state, that not only Clot Bey, but also all the other professional foreigners that have visited Egypt, or examined the works of Sig. Regeo, unanimously avowed, that they had never witnessed things of a similar description more accurately and skilfully conducted; and they readily bestowed on him, even through the medium of the public journals, praise so much the more flattering, as it was less suspicious, being spontaneous and remote. Hence although Sig. Regeo be, like all other men of merit, extremely modest, an enemy of every species of intrigue, and incapable of wishing to advance but through his own fatigue and knowledge, the Egyptian Government nevertheless always held him in due esteem, and after retaining him in divers ways employed

under Clot Bey, it decorated him at length with the title and degree of Professor attached to the Museum of Natural History, an office with which he is still invested, with general satisfaction, uniting as he does to a brilliant genius an excellent heart, that renders him acceptable and dear to all his acquaintance and friends.

Besides the alumni educated (well or ill) in the Abou-Zabel College, the Pacha sent to Europe, especially to France, about one hundred Egyptian lads, with the view of thus diffusing the enlightenment and civilization of this era throughout his dominions, and of acquiring at the same time the reputation of a prince who was a philosopher, a philanthropist, and a munificent patron of the sciences. The result of the second experiment was not much happier than that of the first, as the youths did not take back with them that useful assortment of science that was expected; so that with the exception of a scanty number, the major part of them afforded to the Pacha no great source of congratulation for the trial he had made.

Vaccination was introduced into Egypt about the year 1824, through the beneficent designs of the venerable Chev. Drovetti, whose continual traits of philanthropy resemble so many globules impregnated with vitality, which animate and give life to whoever receive them. With the approbation of his superiors, he formed a commission consisting of two Italian physicians, Massara and Cani, and of one Frenchman, M. Dumas, for the purpose of propagating in the interior of the country the practice of so precious an invention. This commission, provided by the never-sufficiently commendable Chev. Drovetti with all the necessaries, encountered in the discharge of their duties immense difficulties and perils, so much so, that in the province of *Menoufic* a general insurrection was very near breaking out, as the Arabs, especially the women,* supposed that the incisions made on the arms of their infants, far from being a salutary antidote, were a political stratagem of the Pacha, whose object was to impress on the persons of his subjects an indelible mark, so as afterwards to be enabled to distinguish and kidnap them with greater facility into the military levies, and other raisings of men for the accomplishment of his vast enterprises; so that after long and fruitless attempts the vaccination emissaries were compelled to desist and give up all hopes of success; and thus among the Arabs became extinct the practice of Jenner's antidote, which is doubtless one of the finest gifts bestowed by Providence on mankind in modern times. This is a great fatality for Egypt, where the small-pox frequently causes mortality in the extreme.

* It is calculated that the proportion of women at present in Egypt, is a third greater than that of men.

H. H. Mehemet Aly continues however to have his children vaccinated, as also the new born infants belonging to his Harem and household, which is also the practice of the grandees around him.

The first and greatest service that was to be rendered to Egypt by medicine, was to defeat the fatal malady that for ages had taken up its abode there, and which besides the internal havoc that it often creates in the country, threatens also to invade the European shores, and so causes the inhabitants of the latter to live in perpetual dread of such a scourge. We must however unfortunately confess that not even in this point have the medical innovations introduced into Egypt corresponded to the necessities and expectations of the promoters.

The ends to which sanitarial prescriptions should tend in countries which like Egypt contain the germ of the plague, are principally two: the first is, to destroy, if possible, the principle or vital spark of the evil, or to restrict at least as much as possible the consequence of its development: the second, to protect the country from the introduction of external pestilence. Now it is undoubted that neither of those ends has been attained by the local government through the medium of the sanitarial institutions still flourishing in that country; so that if the merit of the design or (as it is termed) of the *good intention* be abstracted, the world and the nation owe little to the promoters of those institutions.

It was only in the beginning of 1833 that the Pacha contemplated the establishment of a Sanitarial Board, the centre of which he made a so-called Consular Committee, consisting, as its name sounds, of the European Consuls accredited by his Government. The representatives of civilized nations were thought to possess an abundant store of knowledge for the utility of so important an institution; but it would have been a wiser plan to seek such knowledge, in itself *particular*, in persons of the trade; and in truth, with one or two exceptions,* the others had not the slightest idea of the topics they undertook to discuss; thus this radical defect soon ruined the work they commenced. So much the more, because to the *relative incapability* of the superiors was soon added the *absolute incapability* of the subalterns selected to fill up the various situations of the new Egyptian sanitarial *iatrarchy*.

But the height of misfortune was, that the physicians specially devoted to the Sanitarial Committee, who with their counsels might

* It is almost superfluous to observe that one of those exceptions is the Chev. and Councillor Acerbi, a man well known for his extraordinary talent and profound knowledge. Let it however be remarked, that as soon as he perceived the impossibility of attaining any useful result, he abstained from taking part in the new Consular Committee, so as to save himself from all responsibility.

have corrected and moderated, at least in a great measure, the lamentable consequences of such primary sources, were in accordance (we grieve to advert to it) with the rest of the ill-compacted edifice, and were absolutely unsuited for the high and important office they undertook.* The provisions therefore that emanated from their Committee, and were executed by their subalterns, were, we regret, seldom useful, and often noxious to the State.

To commence from what we stated to be the first scope of the sanitary discipline with regard to an *endemical* disease, nothing was done to improve the salubrity of the country, if we except the prohibition, often eluded, of interring corpses in the interior, a device undoubtedly beneficial, but insufficient by itself to cut off the intrinsic *fomites* of the evil, as was required. In a recent little work on the *Bubonic plague* of the Levant, we explained the causes to which, in our opinion, Alexandria and Lower Egypt owe their deplorable privilege of having been for ages the chosen nest of that malady, and we will readily avow that many of them are such as to surpass perhaps the limited efficacy of human remedies. Nevertheless it is undeniable, that if by a well understood system of sanitary regulations, constantly acted up to, a part at least of those causes had been obviated, the awful scourge would either have less frequently desolated the country, or its consequences would have been less disastrous. Now what has been done by the Alexandria Committee in order to achieve so beneficial a result? We have already stated, either nothing whatsoever, or too little to produce any fruit? And we might easily demonstrate it with examples, were we not disallowed by brevity from entering into minuter details. But not wishing our assertion to remain totally unproved, we will observe: 1st. That if human corpses be interred by day without the walls, the carcasses of camels, horses, asses, and of that numberless group of minor quadrupeds which at present people Egypt more than the bipeds, are shamefully allowed to rot in the inside streets and squares. 2dly. That dung, rubbish, filthy water, and similar off-scourings of the city always remain in the spot they happened to fall on, without any passage or exit to drain off from the habitations of the living—a most shocking inconvenience, that would alone suffice to render any climate naturally wholesome and pure, murderous to the last degree. 3dly. That neither the education, nor the condition of the people, properly so-called, being improved for reasons superior to the will of the Government, the dwellings or rather the huts of the Arabs continue to be real dens of wild beasts, squalid, filthy,

* Now however Signor GRASSI commences to distinguish himself with repeated observations; he is the chief doctor attached to the above named Committee.

and abominable. 4thly. That the identical groups of beggars now wander through the narrow and crooked lanes of the city, destitute of ventilation, who used to stray through them before, and who are the ordinary receptacles and most fatal propagators of endemical and contagious diseases. 5thly. That the necessary government regulations regarding food are still wanting, while that which is exposed to sale is generally another abundant source of *epidemical* maladies.

Having premised these deplorable truths, passing now to the other object of sanitary regulations, namely, that of protecting the country from *foreign* pestilence, we have to lament on this point also equal, if not greater blunders, quoting as simple instances of proof, 1st. The bad construction of the Lazarettos*, and especially of that of Alexandria, the first of his Highness's, which has nothing in it commendable, whether we speak of its site, or of the minutest particulars of its interior management and medical administration—a truth that we demonstrated in a previous work, addressed to H. E. Bogho Bey, on the 15th December 1833, and which is gradually confirmed by daily experience. 2dly. The inconsistency of repulsive measures, that are every now and then adopted, such as, for example, to permit a free ingress on the land side to persons arriving from regions actually infected with the plague, and at the same time to use rigour (we know not if more barbarous or ridiculous) with the vessels and persons that arrive on the sea-side, while they reach from the remotest places, even solely *suspected*. 3dly. The little or no exactness wherewith the sanitary orders, whether well or ill decreed, are managed: because in consequence of the deep ignorance of the sanitary officials, especially the subalterns, their indifference and want of conviction, there is scarcely ever a case in which the observance of a salutary precept is not accompanied with a greater or less violation of another equally mighty, which abundantly preponderates the utility that might have been expected from the former: thus, for example, when a disorderly gang of beastly Arab keepers are compelled to insulate an infected object, to cleanse a house, to air tainted cloths, &c., we may affirm, without fear of being deceived, that in such emergencies directed to avoid contact, the latter almost always increases in place of diminishing, as was the intent of the order.

But we should be too prolix, were we to discuss more fully this subject. The sketches we have given will suffice.

* The Lazarettos of Europe are doubtless powerful means to prevent the diffusion of *exotic maladies, originally contagious*, depending on multiplied *contact*: but those of Egypt are little serviceable for its periodical and *endemical* diseases, and much more when the Lazarettos are so shockingly situated, ill-managed, and badly laid out.

Although the collection of facts by us adduced appear to prove that the Egyptian government has recognised in principle the social importance of medicine, we grieve to be obliged to add, that the practice of this science in Egypt is still carried on destitute of any check from Government; so that now-a-days, as in those of the thickest barbarity, any body may there entitle himself *Doctor*, and be reputed such, without the superintendence of any superior authority to impede the deplorable results that may ensue. The only examination that is usually made in such matter regards the verification of the title or patents for those that aspire to any post in the Medico-military department, and this examination itself is extremely mild, much more than justice allows; but with regard to the public practice of the science, it is, we repeat, free of every obstruction. There is no necessity of inculcating how the advantages of humanity and the decorum of the medical body itself demand, that a prompt and peremptory remedy be applied to so dangerous and disgraceful an error.

European physicians actually practising in Egypt (almost all employed in the army) exceed the ordinary necessity of the country, there being about seventy, not including apothecaries, who also abound. If those persons in place of blindly and systematically professing the opinions of their Masters, belonging as they do to so many different nations, had first well studied the country, so as to modify the precepts they had imbibed, according as the variety of the climate, of the prevalent constitutional maladies, and of the dispositions and other local circumstances required, their operations would doubtless have either dissipated or moderated the various scourges that generally afflict those regions; but as all, or almost all, in place of judiciously using their preconceived opinions, through a misunderstood, and we were about adding, a censurable *esprit de corps et de nation*, continue to profess there the maxims and precepts inculcated by their respective teachers for generations,* not only widely differing, but often opposed in circumstances, it grieves us to conclude this memoir by stating, that languid humanity has not yet derived in Egypt from this medical anarchy all that aid that it undoubtedly would have received if reason had spoken in place of pertinacity and self-love. For our part, after having studied at length and with accuracy the atmospherical and physical qualities of the country and its inhabitants, we are convinced that abstinence from food, sedatives, bland refreshing purga-

* The French physicians are fanatically attached to the system of Broussais; the Italian, to that of Tomassini; the English to those of Cullen and Brown; the German, to those of Schilling and Sprengel, whose doctrine consists in magnetic, electric, and chemical processes; all discordant in practice.

tives, and proportionate blood-lettings are in general the chief remedies that are suited for Upper and Middle Egypt, for the cure of sporadic diseases that occur there, and in Lower Egypt, a *compound* method, consisting of purgatives, diaphoretics, warm baths, anthelmintics, emetics, tonics, and antiseptics.

Such are the facts that indicate the actual state of Medical science in Egypt; and we consider that they demonstrate a conclusion, which we repute undoubted, as well relative to this particular subject, as to every other branch of innovation actually attempted in that country, viz. that they are as yet but a *rough sketch*, which cannot perhaps be brought to perfection but after a long period of time, when the Reformer Prince who has commenced the undertaking, and his magnanimous son, Ibrahim Pacha,* renowned as well for his rare talent for governing as for his military qualities—when both, we say, having laid aside thoughts of war, by which they have been hitherto distracted, will exclusively dedicate their cares to the internal regime of the State, proud one day of having added a family to the illustrious circle of civilized nations.

Art. VII.—*Note on the dissection of the Arctonix Collaris, or Sand Hog. By* George Evans, Esq. *late Curator to the Asiatic Society.*

This curious little animal, for some time a living inmate of the Society's Rooms, having died suddenly on the night of the 20th January, apparently from the effects of cold, the following particulars of its dissection are offered to the notice of the Society.

In the length of the body it measured one foot, the head from the snout to the occiput five inches, and the tail, which is thin, straight, and pendulous, somewhat exceeded five inches.

The animal proved to be a young female, and had barely completed its second dentition. The only peculiarity worthy of notice, beyond what is already known and received, as far as regards its external organization, is a caudal pouch directly under the origin of the tail (something similar to what is found in the Badger,) but quite distinct from, and wholly unconnected with, the anus or genital organs. The sac is formed by duplicate folds of the common integuments, having a lining of naked membrane, secreting a brown unctuous matter, not unlike cerumen, or wax of the ear; the use of this peculiar structure and se-

* Eldest son of the Viceroy, born in Macedon, three miles from Cavella—a son unmatched in his obedience to his father.

cretion would appear to be confined to the generative function solely, and is most probably of an analogous nature to the lachrymal sacs in most of the Deer tribe.

The stomach was large and simple, with a strong muscular pylorus, not unlike in figure and structure that of our common Indian Bear (*U. labiatus*) on which animal I offered a few remarks at our last meeting.

The liver is divided into five distinct lobes, the second on the right side being partially separated at its lower marginal part for the reception of the gall-bladder, which contained some greenish looking bile. The kidneys differed from those of the Bears in not being lobulated. The total length of the alimentary canal from the pylorus to the anus measured eleven feet two inches. The intestines throughout were of delicate structure, and exhibited no distinct division or peculiarity of form by which the larger could be clearly distinguished from the smaller, and consequently there is no *cæcum* in this animal, or any dilatation equivalent thereto, the canal merely becoming a little more capacious in its descent towards the anal opening, where there are two small glandular follicles on its verge.

The uterus and organs of generation were too small and undeveloped to admit of examination.

Tongue large, broad, and with a soft smooth surface.

The system of dentition was as follows:

Incisors.	Canines.	False Molars.	True Molars.
$\frac{6}{6}$	$\frac{2}{2}$	$\frac{4}{4}$	$\frac{4}{4}$ in all 32;

the Incisors, Canines, and false Molars corresponding more to the *Carnivora*, while the true Molars are tuberculous, leading to the inference that the quality of its food must be of a vegetable nature. The last Molar in the upper jaw is very remarkably lengthened, in fact it is more like the two ordinary terminal teeth united into one than a single tooth, but this is not the case with the corresponding tooth in the lower jaw.

The diet of the animal while in captivity consisted entirely of bread, milk, and plantains; the latter being evidently its favorite food, to the total rejection of meat and flesh of all kinds.

There were no morbid appearances observable on opening the body to account for its sudden death; this coupled with the circumstance of the animal having up to the time of its demise been in perfectly good health, and appearing in fine condition on dissection, leads me to conclude it must have perished from exposure to cold.

It has been remarked by some naturalists that this obscure and anomalous animal is closely allied to the Bears and Pigs, forming a

bond of union, or kind of link, connecting the extreme limits of the *Carnivora* with the omnivorous *Pachydermata*, but I do not clearly trace the connection here said to exist. That it shows some very marked affinities to the Bears cannot be denied, and which are prominently displayed in its perfectly plantigrade motion, by the form and structure of the foot, and by some of its habits; but where the connection said to exist between it and the Pigs, beyond a mere accidental resemblance of its head to that animal is to be found, I am at a loss to conceive. If an analogy is to be traced, I should certainly say that in general appearance and physiology it is far more like the Badger than any other animal it has been compared to, and its approximation to it is made apparent by its kindred habits, dentition, and other structural peculiarities, possessing like the Badgers the caudal pouch, and wanting, like them, a true *cæcum*, which its dissection has pointed out. In short, I incline to consider it an aberrant form of Mole leading directly into the Ursine group, rather than taking an intermediate place between the Bears and the *Pachydermatous* family, to which last it appears from the above dissection to have little or no affinity.

The importance of making anatomical organization the basis of systematic arrangement, as promulgated by Cuvier in his great work the *Regne Animal*, cannot be too forcibly insisted on; it is the only sure and safe guide to a correct analysis of genera and species, and where opportunities present themselves for these investigations they should never be lost sight of, while their results, however uninviting they may appear, should be duly noted and recorded as facts for the information of the systematic naturalist and inquirer after nature.

P. S.—Since writing the above I have met with a delineation and description of an animal by Bewick (Hist. Quad. 4th edit, Newcastle upon Tyne 1800, page 284) called the "Sand Bear," in which he notices the name of "*Sow Badger*" as one of its appellations. The specimen from which his drawing was made belonged to the Tower of London Menagerie. He also quotes a white Badger (described by Brisson) as a native of New York, and believed to be of the same species. From the above quoted drawing of Bewick it is clear that the animal was known to English naturalists long before M. Duvaucel's description had appeared; and I record the fact in order to wipe away a portion of that reproach so frequently cast upon our countrymen, of allowing foreigners the honor of having anticipated us in the wide extended field of Eastern Natural History to which we have such ready access; and which reproach I am convinced (with as much support as is afforded by the Governments of other European Powers to similar objects.) would never have been either deserved or incurred.

Art. VIII.—*On the Cultivation of Roses and the Manufacture of Rose Water and Utur at Ghazeepore.*

We are indebted to Dr. Jackson, Civil Surgeon at Ghazeepore, for the subjoined very interesting note on the celebrated Rose trade of that district. The information was sought for, for a work now in progress on "Indian Materia Medica"; meanwhile we have much pleasure in giving publicity in this Journal to the curious facts Dr. Jackson has collected.—Eds.

I have now the pleasure of sending you the information you require on the manufacture and trade of Rose-water in this district. Ghazeepore seems to have been long famed for its Attar and Rose-water, and having got the name, it has done its best to preserve it. The cultivation of the Rose plant is sufficient to supply the demand, and as the average remuneration is not more than enough to compensate for the trouble of its culture, no competition from the adjoining districts has been made.

Around the station of Ghazeepore there are about 300 beegahs, or about 150 acres, of ground laid out in small detached fields as Rose gardens, most carefully protected on all sides by high mud walls and prickly pear fences, to keep out the cattle. These lands, which belong to Zemindars, are planted with Rose trees, and are annually let out at so much per beegah for the ground, and so much additional for the Rose plants—generally five rupees per beegah, and twenty-five rupees for the Rose trees, of which there are 1000 in each beegah. The additional expense for cultivation would be about 8/8; so that for rupees 30/8 you have for the season one beegah of 1000 Rose trees.

If the season is good this beegah of 1000 Rose trees should yield one lac of Roses. Purchases for Roses are always made at so much per lac. The price of course varies according to the year, and will average from 40 to 70 rupees. During the past season the latter was the price given for one lac of Roses towards the conclusion.

As soon as the Roses come into flower the Zemindars and cultivators of the Rose gardens, as well as intending purchasers, meet in the city, and according to the demand and expected produce, a *nerick* is established, and purchasers then enter into agreement with the cultivators for so many lacs of Roses at such a price. This agreement is considered binding, and the cultivator is obliged to deliver the quantity at the contract rate; when that is completed another can be made, but this latter is always at a much higher rate.

The Rose trees come into flower at the beginning of March and continue so through April. In the morning early the flowers are plucked

by numbers of men, women, and children, and are conveyed in large bags to the several contracting parties for distillation. The cultivators themselves very rarely manufacture.

The native apparatus for distilling the Rose-water is of the simplest construction; it consists of a large copper or iron boiler well tinned, capable of holding from eight to twelve gallons, (shaped like the earthen hoondahs in which the Gomastahs send in their Opium) having a large body with a rather narrow neck, and a mouth about eight inches in diameter; on the top of this is fixed the head of the still, which is nothing more than an old *dekchee*, or cooking vessel, with a hole in the centre to receive the tube or worm.

This tube is composed of two pieces of bamboo, fastened at an acute angle, and it is covered the whole length with a strong binding of corded string, over which is a luting of earth to prevent the vapour from escaping. The small end, about two feet long, is fixed into the hole in the centre of the head, where it is well luted with flour and water. The lower arm or end of the tube is carried down into a long necked vessel or receiver, called a *bhubka*. This is placed in a handee of water which as it gets hot is changed. The head of the still is luted on to the body, and the long arm of the tube in the *bhubka* is also well provided with a cushion of cloth, so as to keep in all vapour. The boiler is let into an earthen furnace, and the whole is ready for operation.

There is such a variety of Rose-water manufactured in the bazar, and so much that bears the name, which is nothing more than a mixture of sandal oil, that it is impossible to lay down the plan which is adopted. The best Rose-water however in the bazar may be computed as bearing the proportion of one thousand Roses to a seer of water; this perhaps may be considered as the best procurable. From one thousand Roses most generally a seer and a half of Rose-water is distilled, and perhaps from this even the Attar has been removed.

The boiler of the still will hold from eight to twelve or sixteen thousand Roses. On eight thousand Roses from ten to eleven seers of water will be placed, and eight seers of Rose water will be distilled. This after distillation is placed in a carboy of glass, and is exposed to the sun for several days to become *puckah*; it is then stopped with cotton, and has a covering of moist clay put over it; this becoming hard effectually prevents the scent from escaping. The price of this will be from twelve to sixteen rupees. This is the best that can be procured.

To procure the Attar, the Roses are put into the still, and the water passes over gradually as in the Rose-water process; after the whole has come over, the Rose-water is placed in a large metal basin

which is covered with wetted muslin tied over to prevent insects or dust getting into it; this vessel is let into the ground about two feet, which has been previously wetted with water, and it is allowed to remain quiet during the whole night. The Attar is always made at the beginning of the season when the nights are cool; in the morning early the little film of Attar which is formed upon the surface of the Rose-water during the night is removed by means of a feather, and it is then carefully placed in a small phial; and day after day as the collection is made it is placed for a short period in the sun, and after a sufficient quantity has been procured it is poured off clear, and of the colour of amber, into small phials. Pure Attar when it has been removed only three or four days has a pale greenish hue, by keeping it loses this, and in a few weeks time it becomes of a pale yellow. The first few days' distillation does not produce such fine Attar as comes off afterwards, in consequence of the dust or little particles of dirt in the still and the tube being mixed with it. This is readily separated from its sinking to the bottom of the Attar, which melts at a temperature of 84°. From one lac of Roses it is generally calculated that 180 grains, or one tolah, of Attar can be procured; more than this can be obtained if the Roses are full sized, and the nights cold to allow of the congelation. The Attar purchased in the bazar is generally adulterated, mixed with sandal oil or sweet oil; not even the richest native will give the price at which the purest Attar alone can be obtained, and the purest Attar that is made is sold only to Europeans. During the past year it has been selling from 80 to 90 rupees the tolah; the year before it might have been purchased for 50 rupees. Native stills are let out at so much per day or week, and it frequently occurs that the residents prepare some Rose-water for their own use as a present to their friends, to secure their being provided with that which is the best. The natives never remove the calices of the Rose flowers, but place the whole into the still as it comes from the gardens.

The best plan appears to me to have this removed, as by this means the Rose-water may be preserved a longer time, and is not spoiled by the acid smell occasionally met with in the native Rose-water. It is usual to calculate 100 bottles to one lac of Roses. The Rose-water should always be twice distilled; over ten thousand Roses water may be put to allow of sixteen or twenty bottles coming out; the following day these twenty bottles are placed over eight thousand more Roses, and about eighteen bottles of Rose-water are distilled. This may be considered the best to be met with. The Attar is so much lighter than the Rose-water, that previous to use it is better to expose the Rose-water to the sun for a few days, to allow of its being well mixed,

and Rose-water that has been kept six months is always better than that which has recently been made.

At the commencement of the Rose season, people from all parts come to make their purchases, and very large quantities are prepared and sold. There are about thirty-six places in the city of Ghazeepore where Rose-water is distilled. These people generally put a large quantity of sandal oil into the receiver, the oil is afterwards carefully removed and sold as Sandal Attar, and the water put into carboys and disposed of as Rose-water. At the time of sale a few drops of sandal oil are placed on the neck of the carboy to give it a fresh scent, and to many of the natives it appears perfectly immaterial whether the scent arises solely from the sandal oil or from the Roses; large quantities of sandal oil are every year brought up from the south and expended in this way.

The chief use the natives appear to make of the Rose-water or the Sandal Attar as they term it, is at the period of their festivals and weddings. It is then distributed largely to the guests as they arrive, and sprinkled in profusion in the apartments. A large quantity of Rose-water is sold at Benares, and many of the native Rajahs send over to Ghazeepore for its purchase. Most of the Rose-water as soon as distilled is taken away, and after six months from the termination of the manufacture there are not more than four or five places where it is to be met with.

I should consider that the value of the Roses sold for the manufacture of Rose-water may be estimated at 15,000 rupees a year, and from this to 20,000, and from the usual price asked for the Rose-water and for which it is sold, I should consider there is a profit of 40,000 rupees. The natives are very fond of using the Rose-water as medicine or as a vehicle for other mixtures, and they consume a good deal of the petals for the conserve of Roses, or *Goolcund*, as they call it. There are several kinds of essential oils produced from the strong scented flowers in this district, which I will procure and send down to you.

Art. IX.—*Memoranda on the Museum of the Asiatic Society.* By Dr. M'Clelland.

A Museum may be considered in the light of a philosophical book, in which language is represented by works of nature and art. If system be important in common undertakings, in a Museum it is every thing; and not only should every object be placed according to the position it occupies in the history of art, or in the system of nature, but the very apartments in which the collections are placed, and the cabinets, and even the glasses in which they are contained, should be conformable to some general plan, as much as possible in imitation of the simplicity of nature. To be able to adopt a plan, requires that we should have something to work upon; and in proposing a plan for the guidance of future operations in the Museum, we cannot be too grateful to those who have by their exertions, within a comparatively short space of time, put us in possession of our present instructive and respectable collections.

To Captain Herbert and Mr. Calder we are not only indebted for extensive geological and mineralogical collections, but as being among the first contributors to the Society's collection of natural objects, which may be said to have commenced in 1828 with the revival of the Physical Committee.

Although a brief space of ten years has only elapsed since our Museum of Natural History was first formed, yet more changes have taken place in that short period among those who have taken an active part in its management, than in any similar European establishment in half a century.

This is one reason why a set of rules should be adopted by which the steady advancement of the Museum may be secured; and another reason for such rules, is the growing importance of the collection itself; which requires on the part of the Society a stricter surveillance over the establishment entrusted with its management than formerly.

Before proposing rules it is necessary to explain the different purposes they are required to answer.

On the subject of Cabinets, it is necessary that they should be chosen with strict attention to the appearance and convenience of the Museum. They should be of two kinds, namely, glass cases for walls, and tables with glazed covers for the centre of the rooms, of the pattern proposed by Mr. Jameson, in imitation of the Edinburgh Museum.

The first description of cases fitted up with shelves will answer for

birds, fishes, and the smaller reptiles and mammalia which may be disposed of along the walls. The second description of cabinets will answer equally for shells, insects, rocks, minerals, and fossils. Thus every object for which a cabinet is likely to be required may find a place in one of the two sorts, to which it is proposed to confine the furniture of the Museum.

That an unnecessary variety in the form of cabinetsdestroys the uniformity of the Museum, and that lofty cabinets placed in the middle of the apartments, as at present, convey a sense of closeness and prevent the use of punkas, so essential in this climate, any one who has paid a visit to the Museum must see.

Indeed, without the strictest attention to some general plan in the fitting up of a Museum, it must appear to persons of taste rather as any thing rather than a place of science. Of all our cabinets, those only in which the perching birds have beeu placed on shelves by Mr. Jameson ought to be retained longer than it may be convenient to the Society to replace them. Twelve glazed tables of the pattern already alluded to, each nine feet in length, ought to be provided. These would admit of all the rocks and minerals, as well as fossils, which constitute an important portion of the Society's collection, being brought forward and exhibited. Even if twelve tables should prove too many for this object, the spare ones would be ready for the reception of such new collections of interest as might be sent to us in any of the numerous departments for which such tables are intended.

The next subject to consider is the nomenclature of the Museum. It is necessary, for various reasons, that this should not altogether rest on the authority of the Curator. There is a plan which with a little regularity in its execution, will place this very important object on the best possible footing, and at the same time afford to our Museum something more than local interest. Let every species be numbered, and all duplicates be numbered so as to correspond with the species to which they belong in the regular collection.* After retaining a perfect series or two let duplicates or triplicates be forwarded on the part of the Society to individuals eminent in particular branches of science, re-

* There are now in the Museum some hundreds of duplicate skins of birds, some of which appear to have been intended for the East India Company's Museum; these may be all numbered so as to correspond with our own collection, and figured lists transmitted with them to the India House, soliciting that such lists may be returned to the Society with the correct nomenclature inserted opposite to the figures. Anticipating no objection to this, I have already numbered most of the birds in the Society's collection, and have ordered corresponding numbers to be attached to those intended for the Honorable Court.

questing that lists may be returned to the Society with the scientific names inserted opposite to the corresponding numbers, from such lists the names may then be transferred to the objects in the Museum. We should thus not only secure a perfect nomenclature, but at the same time disseminate a knowledge of the productions of India, and give a publicity to the contents of our collection far more important to the advancement of science than could be effected by any other means.

On the establishments of the Museum as they relate to expenditure, I am incompetent to offer any suggestions. It appears from the pecuniary accounts published in the January number of the Journal, that the Museum expenses in 1838 exceeded the Government grant of 200 Rupees per mensem by 1171 Rupees, although 246 Rupees only of that excess appears to be set down for cabinets. During the present year if the requisite cabinets be procured, and the other expenses of the Museum be continued as before, the excess beyond the Government grant for the support of the Museum, will necessarily amount to several thousand rupees.

The persons employed in the Museum at present are—two taxidermists, one on the receipt of 50 and the other 12 Rupees per mensem; two carpenters at 8 Rupees each; and two native servants; whose salaries altogether amount to 88 Rupees per mensem.

The principal taxidermist cannot write, and as he is therefore incapable of keeping any record, it would be necessary to have some one else on the spot to wait on visitors, and assist in carrying on the business of the Museum. In the Library there is an assistant librarian who has been employed for several years on a salary of 30 Rupees a month, it would be necessary that his duties should be extended to the Museum, and that his salary should be raised, say from 30 to 50, or 60 Rupees a month, which would still leave a balance of 70 or 80 a month for petty expenses, so that the Government grant would thus just meet the current expenses of the Museum, exclusive of cabinets and Curator's salary.

If we have a Museum, we must have cabinets; the salary of a Curator is not however considered so essential, and some of the members of the Society have already protested against such an expenditure.

In proposing that the office should be an honorary one, I am guided entirely by what I conceive would be the sentiments of all votaries of science, without any affectation of disinterestedness on my own part. Indeed under any circumstances I could not undertake to hold the office of Curator longer than the plans here proposed should be placed in proper training, after which, the whole might be conducted by a subordinate establishment under the direction of the Committee of

Papers; a more efficient subordinate establishment might be provided for the Museum; the increased value and extent of the collections seem to me to require more than two native servants, while the carpenters might be exchanged for collectors. If native collectors, on a monthly salary of 6 Rupees each be properly attended to and trained, they would soon put us in possession of most of the insects, fishes, and *crustacea* of Bengal, and all such persons, as well as those employed in the Museum, might be placed under the immediate direction of a well educated youth from one of the public schools. It would be necessary that such a person should be well recommended not only for general acquirements, but also for his taste in Natural History; the latter taste of course we could only expect to find in any youth from a Calcutta Seminary, on the *non fit sed nascetur* principle.

After providing all that is necessary in the way of cabinets, collectors, and efficient establishments for conducting the duties of the Museum, if the funds of the Society should still allow of a specific sum being set apart for the remuneration of a Curator so much the better, although I must confess I should rather see him in circumstances that would render pecuniary remuneration from his colleagues unnecessary. As however it some times happens that science and fortune do not go hand in hand, a nominal salary of 30 Rupees a month might be assigned to the office of Curator. It will be for the Committee of Finance to determine whether after providing for the increased expenses attending our augmented collections, a larger sum can consistently with the receipts of the Society be paid for the object in question.

From the above remarks we may deduce the following rules, which appear to embrace all that is necessary to secure the progressive advancement of the Museum:—

1. The direction of the Museum to be entrusted to the Committee of Papers, and its duties superintended by a scientific individual appointed by the Society on the nomination of the Committee.
2. Although the office of Curator is held to be one of distinction, an allowance of 30 Rupees per mensem is granted by the Society, to be drawn or not according as the Curator may feel inclined.
3. That the subordinate establishments in the Museum shall consist, if possible, of two well educated Europeans* or Natives of India, on a salary of not less than 50 and 12 Rupees per month respectively.
4. That the number and occupation of other servants in the Museum shall vary according to circumstances.

* This is not intended to interfere with the persons already employed in the Museum.

5. That only two descriptions of cabinets are to be admitted into the Museum, namely, glass cases of one uniform pattern for the reception of birds, small quadrupeds and the like, which are to be placed along the walls; and, tables with glass covers of an uniform pattern for the reception of shells, insects, fossils requiring cabinets, geological specimens, and minerals; to be placed along the centre of the apartments.
6. That all objects in the Museum be numbered and entered in Museum books to be provided for the purpose, and that duplicates of birds, shells, insects, and the like, be from time to time transmitted on the part of the Society, with figured lists, names of original donors, &c. to such eminent scientific individuals as may seem most likely to afford correct information regarding them, and who should be requested to return the lists with the names and references inserted opposite each figure or number.
7. That all such communications are to be regularly entered in Museum books, together with such replies as may be received on the subject.

June 4th, 1839.

ART. X.—*Observations on the "Report on the Museum of the Asiatic Society, by* DR. WM. JAMESON," *published in the Journal for March*, 1839. *By* J. T. PEARSON, *Assistant Surgeon, formerly Curator of the Museum of the Asiatic Society.*

To the Secretaries to the Asiatic Society.

GENTLEMEN—A paper by Dr. Wm. Jameson, entitled a "Report on the Museum of the Asiatic Society" having appeared in your Journal for March last, reached me to day; and as it appears to contain reflections upon my conduct while Curator of the Society's Museum; and recommendations, which if I had not made I should have neglected, or been ignorant, of my duty; I request you will do me the favour to lay before the Society the following observations. I perceive you went out of your usual course to give the "earliest publicity" to what you deem Dr. Jameson's "very important" paper; and, therefore, I trust you will do me the justice to publish my reply in the next number of your Journal.

Dr. Jameson begins by stating his disinclination to report upon the state of the Society's Museum, lest he might be considered as "attacking the proceedings of his predecessors." A very proper feeling, but

which, having overcome, he should not have allowed to retain such influence over his report, as to induce him to conceal the names of those, his predecessors, he thought fit to censure. For my part, I wish he had been more explicit, both for his own sake and for mine; for hints and insinuations are difficult for me to deal with; while they leave him open to a suspicion of being one of those who are

> "Willing to wound, and yet afraid to strike;"
> "Just hint a fault, and hesitate dislike"—

a character, which I should be very sorry did I really think him to merit.

However lest I should be accused of appropriating to myself blame intended for another, conscious of deserving it; I must refer to what was said by Dr. M'Clelland (from whom of all men I least expected an attack) at a late meeting of the Society. Dr. Jameson might easily err from ignorance; Dr. M'Clelland could scarcely do so;—the former possibly never heard much more of me than my name, still less the precise part I took in the management of the Museum; the latter was aware I was one of those predecessors of Dr. Jameson he took precedence to censure*; though, as he did not know the state of the collection of Natural History when I took charge (for I believe he had at that time never seen it) I know not how he can justify his bold comparison.

Dr. Jameson first notices the "*minerals*" and "*rocks*," and comments in severe terms upon the state in which he found, and left them. With this I have nothing to do. The mineralogical and geological (organic and inorganic) departments were never committed to my care. Mr. James Prinsep kept them in his own hands; and, in justice to him, I beg to say, that although from want of cabinets he could not arrange them; there was, so far as I remember, none of that confusion and damage Dr. Jameson so forcibly bewails. Certainly they were packed in drawers, but they were well known to Mr. Prinsep. I believe most, if not all of consequence, of them, were labelled; and the destruction spoken of is far more likely to have happened in their transmission to the Society, than in their quiet dormitories in the Society's rooms. At all events, as aforesaid, I had nothing to do with the mineralogy, nor geology either.† The zoology was my branch of the

* Sic. in M. S.—Eds.

† I do not know the arrangements made with Mr. Evans; but I believe he had charge only of the zoological part of the Museum, and consequently was as innocent of the mismanagement (if any) of the "minerals and rocks" as myself. I think this due to an absent man. Lieut Kittoe's proceedings I know still less of: but he, as well as the Museum Committee, are here to answer for themselves.

Museum; for this, *as I left it*,* I am answerable, and to Dr. Jameson's notes upon it I shall briefly reply, in the order of his remarks.

Mammalia.—Dr. Jameson states that "many of the specimens of *Mammalia* are exceedingly good; but others, from their bad condition, require to be replaced as soon as possible." I believe the good specimens are for the most part those procured and set up either by myself or under my superintendence. The bad ones are what were in the Museum before I took charge, and were in a most miserable state, as may be seen from my first annual Report. I left them in the Museum only till better could be procured, on the principle that a bad specimen is better than none.

Birds.—Of the 600 birds mentioned by Dr. Jameson, about 360 were procured and prepared by my exertions—many of them shot by myself; of the rest I err but little if I say, the greater part would never have reached the Society's Museum, if I had not taken measures, hereafter to be mentioned, for their collection. Of those prepared in my time I have copious notes, and the greater portion of a catalogue made, which is enriched by observations on the manners and habits of the Indian birds by Mr. C. W. Smith. This I did intend to finish, so soon as I could get a little respite from the incessant occupation incidental to the wandering and anxious life I have led since I left Calcutta, would allow; and I shall be happy to do so as soon as possible, if the Society wish it. In the enumeration of new and rare specimens Dr. Jameson omits the newest and rarest of them all, viz. the *Halcyon amauropterus, mihi*, which I discovered, and the *Eurimrynchus griseus*, of which but one other specimen is known.†

* I say *as I left it*, because the Editors of the Journal in a note appended to Dr. Jameson's Report say, that since his departure, short as the time has been, the minerals he arranged have been "swept into chaos by the unguarded hands of *Assistants*." As nearly two years have elapsed since I was Curator, during which the Museum had been in charge of a Committee and two Curators before Dr. Jameson; surely some allowance might have been made for Dr. Jameson's "predecessors" on the same score; especially as from the utter failure of the Committee to fulfil the office properly, the whole management was probably left in their time to the "unguarded hands of *Assistants*" only. I think the excuse might have been made for us; not I trust that I need it, but in common fairness.

† As every one with any pretensions to ornithological knowledge is acquainted with the rareness of this bird, I fear from Dr. Jameson's silence, it has been lost to, or abstracted from, the Museum. I hope the Secretaries will inquire into this; for it is unquestionably the most valuable ornithological specimen we have. (1)

(1) Dr. Pearson's note.—We have made the suggested inquiry of Dr. M'Clelland, who replies thus,

"The Museum is at present in such confusion owing to the repairs of the house, that it is impossible to say what is in it, and besides all the tickets have fallen off the birds from damp, as they appear to have been merely fastened with glue."—Eds.

Osteology.—The osteological department is well spoken of by Dr. Jameson. The skeletons he praises were nearly, if not quite, all procured and articulated under my directions. And those who know by actual practice, the trouble of preparing bones of a skeleton; and afterwards the manual labour, and anatomical and mechanical skill requisite to articulate them, will not be disposed to censure me, or withhold their praise from my industrious and willing assistant M. Bouchez; for the value of who's services I am pleased at having another opportunity of recording my thanks.

Ichthyological, Erpetological, Conchological, &c. Departments.—As Dr. Jameson says nothing about these, I shall follow his example, except to observe, that the want of bottles, and means to arrange the specimens, placed them in nearly the same condition as that of the minerals; that I procured most of them; the land and fresh water shells of India in particular were chiefly from my own collection, and so were the insects, except a few presented by Dr. M'Clelland, and one or two other individuals, and some from Chirra Poonjee and Sylhet, which I purchased.

With regard to Dr. Jameson's suggestions—I have to observe, that fitting up the bird-cases with shelves, is doubtless an alteration, but no improvement upon the plan I adopted. Shelves in high cases, like the Society's, obstruct the view of the specimens and darken the cases; and for these reasons I removed them. By my plan the specimens could be systematically arranged, and were so; and in my opinion it admitted of far more being placed in a given space than the shelving system. As to the classification of the birds, I followed that of Vigors, as given in the Zoological Journals, and Stephens' andShaw's Zoology as being simple, easy of access to common readers, and highly approved of by eminent zoologists. No doubt it has faults, but it is the system (perhaps I should say *method*) best adapted to a Museum where the majority of members are not professed ornithologists; and to change it for that of Cuvier, the chief merit of which is being part of a general systematic work, is I submit, another instance of an alteration being no improvement.

Dr. Jameson next suggests that the cases should be made "air tight by lining the edges of the doors with shamois leather, poisoned with arsenic." I fully agree with him that specimens of Natural History can be preserved here, and I will go further than he does, and say, they can be preserved here not only almost, but quite as well as they can be in Europe: but not by the means he points out. As for making a case air-tight, the thing is impossible; but it may be made tight enough to become continually damp within—a rather curious mode of preserving the specimens. Years

ago I pointed out to the Society, and practised, with complete success, the plan I suggested of keeping the cases open as much as possible, particularly in fine weather. When specimens are well aired, and the pernicious practice of shutting them up in tight cases is abandoned, they can be kept as well in Bengal as in England. I had some in my private collections which I prepared seven years before, and in so perfect a state as not to have lost a feather;* and I venture to assert that no one while the Museum was under my charge ever saw one of the specimens prepared from fresh birds, either in a decayed or damaged state. In fact, nothing will keep in a damp climate unless frequently aired, whether animal or vegetable specimens, stationery or linen, silks or satins, pack them in tin and air-tight boxes how we may,—a fact which will be borne testimony to by every old lady in Bengal.

Again with regard to Dr. Jameson's "*desiderata*;"—I regret that neither he himself, nor any of his friends, consulted the Journal, or inquired what had been done by those predecessors he assumes to be so worthy of censure. Had he done so, he would have found, that I did "get up under the auspices of the Society" the instructions or "memorial" as he terms it, (which forms the first of his list of "desiderata") giving brief instructions how to collect, prepare, and pack objects of Natural History; and that it was extensively circulated both by Mr. Prinsep and myself. This memorandum, moreover, was followed by a very long paper of no less than ten closely printed pages in the number of August 1835, of the Journal of the Asiatic Society; in which were detailed the plans followed by the best taxidermists in Europe, and the result of my own experience of eight years in this country. A further experience of four years has given me but little to add; so I think the Society cannot do better than re-print and circulate that paper. I shall be happy to make a few alterations in, and additions to it, and Dr. Jameson will perhaps favour us with his remarks, or some account of such methods as may have been recently brought into notice in Europe; while Dr. M'Clelland can append a list of specimens required by the Society. When my paper was written every thing was welcome, and consequently no such list appended. These papers were eminently successful; great numbers of specimens having been sent in soon after their having been circulated: probably copies of the shorter one are still in the Secretary's office.

* For this see the *Felis kutas, mihi,* in the Society's Museum, which I mounted in December 1831; and when I left Calcutta in 1837, nearly six years afterwards, its preservation was so perfect, that though a heavy specimen, I lifted it up by the hair of the back without injury. I need scarcely say it had never been shut up in an air-tight case.

I believe I have now replied to the zoological part of Dr. Jameson's observations, and shewn—First, that the censure he bestows does not belong to me; secondly, that those parts of the Museum he praises were especially under my care; and, thirdly, that his suggestions for the improvement of the zoological department of the Museum are either pernicious, or have been anticipated years ago. I shall now proceed to state what I did while I held the office of Curator, so that he, or any body else who feels disposed to the work, may deal out upon me the censure he may consider me to merit; for, as I wish not to usurp credit which does not belong to me, I am not any longer inclined to be under imputations of misconduct and neglect, for the errors and omissions of others.

I think it was so early as the year 1830 that I proposed to Sir E. Ryan, then, as now, the most disinterested lover of science in the Society, the establishment of a Museum of Natural History for the Asiatic Society. I was at that time at Midnapore, and the suggestion, though favoured with his support, was too much in advance of the feelings of the day, almost exclusively confined to the love of Oriental literature. On removing to Calcutta in 1832, I proposed the matter to the Society at large; but nothing could be done till July 1833, when I was appointed, much against my will, honorary Curator of the Museum of Natural History. This I nominally held till March 1835, and it was but nominally, to please Mr. Prinsep, and against my own wishes and judgment; for no assistance was given me. I could but ill afford to keep up additional expenses to convey me to the Museum; and more than all, I felt that my circumstances were then such as not to warrant my so giving up time, which I ought to employ to the benefit of my family; therefore I resigned the situation, and proposed, that a person properly qualified should be sent for from Europe, to fill it. The subject was hereupon referred to the Committee of Papers (as it is reported in the Journal of the Asiatic Society, but as I think, to a Sub-Committee) for the purpose of considering the question. This Committee consulted Baron Hugel, and the majority agreed that for various reasons, stated in their report, it would be better to employ a Curator already in the country, whose services could be procured at less cost, and devote part of the sum proposed, for the contingent expenses. To this the Society agreed, and I was elected Curator in April 1835, as an experiment for one year.

When I took charge of the Museum no order nor arrangement had been observed; specimens of the arts and sciences of India, and the neighboring countries, of their religion and manufactures, antique and modern, were mixed with those of Natural History in abundant

confusion. The cases were dirty, and falling to pieces, with wooden doors; the rooms damp; and the specimens decaying. All this was reduced to order. In the words of my first annual report—"The first step was to divide the Museum into two distinct parts; one consisting of the works of art; the other, of the productions of nature. The numerous valuable specimens of the former being lost in the rooms below, were removed into the entrance hall, staircase, and gallery, where they now are, and where they are seen, as we all know, to the greatest advantage; and their removal allowed of the apartments they occupied being entirely devoted to the Natural History portion of the Museum.

"On examination, the specimens of Natural History were found, for the most part, in a very neglected state. In Osteology they were numerous, and some of these very valuable; but many were more or less mutilated, and the teeth of the skulls lost, while no catalogue, nor even memorandum of the greater portion could be found. The first care was to remedy this: the broken specimens were repaired, so far as they could be repaired; and a catalogue was made which includes every thing concerning them that can be gleaned from the Researches and other quarters, whether as to the specimens themselves, or the names of the donors. In making this catalogue some difficulty was experienced from the want of any notices of the specimens, and from there being no objects of comparison, by which to discover the species of an animal, of which we had perhaps but a horn, or a single bone.

"While this was going on, attention was also directed to the formation of a cabinet of reference to compare the fossil remains in which the Museum is so rich with the living congeners of the animals to which they belonged. This is in its very nature a tedious and laborious work; but already there have been articulated, and set up, skeletons of a Monkey, Weasel, Cat, Rat, Musk-deer, Horse, Parrot, and Tortoise. The Rhinoceros, which was before but badly put together, has been made the most of that its condition would allow; and an Elephant's skeleton,* and those of another Horse and Tortoise are being prepared. As this branch of the Museum is of the greatest importance, I am anxious to render it as complete as possible; and with this view have written to various individuals likely to further our object, who have promised the bones of the Camel, wild Buffalo, large Deer of various kinds, the large Bullock of Upper India, the Tapir, and the Alligator; and we may expect soon to receive them."

But for full information I beg to refer to the report, which was pub-

* This was afterwards found unfit for articulation, and I procured another.

lished in the Journal of the Asiatic Society for April 1836 ; where it will be seen that in one year the Museum put on a different aspect from what it presented when I took charge. The damp was got rid of ; most of the cases were altered and repaired ; the decayed specimens were restored as far as possible ; an Osteological catalogue was made ; that of the Birds began ; nine complete skeletons were articulated ; twelve specimens of *Mammalia*, and 133 birds were mounted, and more than 500 specimens of *Vertebrata ;* 150 *Molusca*, some *Crustacea*, and several hundred insects were added to the Museum ; and the Committee was so well satisfied with my exertions as to resolve—" That the Committee are highly pleased with the arrangements adopted by Dr. Pearson in the Museum, and with the progress it has made under his supervision ; and they have no hesitation in recommending to the Society a continuation of the same system which has proved so beneficial and effective during the experimental year."*

My copy of the Journal for the first months of 1837 was lost in a boat on the Ganges, and I have but a draft copy of my report for that year. But from this I learn that in the second year, the arrangements of the last year were followed out by improving the appearance of the apartments by matting the rooms ; while by free ventilation the damp, from which so much inconvenience was formerly experienced, altogether disappeared. The remainder of the cabinets, save one, were glazed, and made ready for specimens ; and subscriptions were set on foot for adding to them. There were mounted in the Museum, twenty-eight specimens of *Mammalia*, two hundred and thirty birds—ten of large size ; and sixteen reptiles ; and eight skeletons were prepared and articulated. Besides these there were presented twenty-eight osteological specimens. Most of the reptiles, the fishes, and invertebrated animals are not enumerated in my draft of the report ; but I believe they amounted to several hundred specimens.

Thus in two years there were prepared by myself and under my superintendence,

17 Articulated Skeletons,
363 Mounted Birds,
40 Mounted *Mammalia*,

and a large collection was made, principally by myself and my own servants, of other vertebrated and invertebrated animals. The skeletons of all the large *Mammalia* we have were thus procured. Those of the Orang-Outang, Monkey, Weasel, Cat, Rat, Musk-deer, Cow, Horse, Ass, Hog, Rhinoceros, Parrot, Adjutant, Tortoises, &c., were procured

* Journal of the Asiatic Society, April 1836, page 253.

entirely by my exertions. When the Orang-Outang* died its owner directed the skin to be tanned, and the carcase thrown away. As I had long had my eye upon it, I soon found out what had been done, hastened to the owner, and by recovering the greater part of the bones (all save a few of the feet, I think) had the pleasure of setting up in the Museum one of the most valuable skeletons in the world. The carcase of the Rhinoceros was sent to Dr. Grant by Mr. J. H. Barlow, who shot him; Dr. Grant gave it to me, and I presented it, with his consent, to the Society in Mr. Barlow's name. In fact I procured all these specimens by my own exertions (for there was not one in the Museum when I became Curator) as well as the skeleton of the Elephant, which was about being articulated when I gave up the office.

Besides these things I maintained at my own expense an extensive correspondence with various individuals to induce them to send specimens to the Museum; and represented to the members of the Government, with an urgency which I fear was sometimes thought scarcely becoming, the importance of expeditions undertaken into countries but little known, being accompanied by persons qualified to make zoological collections. For instance, I represented to Sir C. Metcalfe, that the attention of the Assam Tea expedition should be directed as much as possible to this object, and I believe it was in consequence of this recommendation, that any zoological collections were made in that expedition. I did the same when Dr. Richardson's expedition into the Shan country was contemplated; and I have reason to believe he would have been accompanied by an officer expressly for this purpose, had he not set out sooner than was expected. In short, I can safely say, I lost no opportunity of acquiring specimens for the Museum, and of advancing zoological knowledge. All this was not done in a corner; but is well known to the President, to some of the Vice-Presidents, and to the Members of the Committee of Papers of the day. And it was done too at a time when an up-hill battle had to be fought. No Government allowance was then given to the Society; and a great number of the members of most influence were opposed to spending their money on a Museum of Natural History. Indeed so begrudgingly were the necessary expenses bestowed, that I had both years to advance money, every month, for contingent expenses, at my own risk, while I paid the salary of young Nicholas, M. Bocchez's nephew, out of my own pocket, and thus brought him up as another valuable Assistant in

* Though here called an Orang-Outang, for want of a name which an English reader can well understand, I believe the specimen to be the female of the *Simia Satyrus*, the Gigantic Ape shot by Capt. Cornefoot in Sumatra, which was described in the Researches, and whose jaw bone is in the Museum.

the Museum. I beg not to be misunderstood as assuming any merit for these things; it was my duty to do them, and it is to shew I did not neglect my duty, that I venture to mention them.

With regard to catalogues, it was no use to prepare one of the *Invertebrata* till a collection could be made worthy of a catalogue being prepared; nor of the *Vertebrata*, which could not be displayed. But of the former the shells were all fixed upon ebony boards, and labelled with their names and locality—a measure which obviated the necessity for a catalogue, and rendered the making one an easy matter; while of the latter, I both labelled and made a catalogue of the osteological specimens, collecting, at no little pains, all the information that could be procured about them, and the names of the donors, from the Researches and Records of the Society. The *Mammalia* and Birds were all labelled in a similar manner, and a catalogue prepared of a portion of the former, and more than 200 of the latter. These catalogues I shall be happy to send to the Society; the two first immediately, if so required, though I had rather delay doing so till I can copy out and finish the third.

I have now given a fair exposition of my conduct, and furnished any person who may be inclined to comment upon it with ample materials. I hope I have done it in a proper spirit, and avoided any needless asperity of remark: it has been my aim to do so, to defend myself, to offend none; but if I have unfortunately been too harsh, I am sorry for it, and hope some allowance will be made for the feelings of a man who knows that so far from deserving censure for having neglected his duty as Curator of the Museum, he is fully entitled to the thanks the Society accorded him when his services were fresh before them; and that but for his exertions there would not at this moment have been a Museum of Natural History at all.

I have only further to remark, that placed in a public situation as a servant of the Society, I had reason to expect my proceedings would be narrowly watched; and I have no objection to the criticism which by accepting the situation I courted. But I have a right to demand that the criticism should be fair; and that I should not be censured for the blunders or neglect, (if such there were) of others. I pretend to no profound knowledge of Natural History—a science in which, (as I have pursued it as an amusement, and a relaxation from the more serious, and to me more important, study of my profession) I am probably inferior to Dr. Jameson and many others in the country; but I yield not to him, nor to any one else, in the faithful performance of any duty I venture to undertake.

In conclusion, I do not apologise to yourselves, Gentlemen, for trespassing so long upon your pages, for it is in the very nature of a defence to take up more room than an attack; and having published the attack, I am sure you will do me the justice to publish my defence; and the same sense of justice will prevent you from prescribing its limits; while I should be wanting in respect to the Society, if I failed to do my utmost to demonstrate that one, whose services they so long thanked, and paid for, did not unworthily receive their favours.

I have the honor to be, Gentlemen,
Your most obedient humble servant,

Darjeeling, 24th June, 1839. J. T. PEARSON.

Art. XI.—*Proceedings of the Asiatic Society.*

(*Wednesday Evening, the* 1*st May,* 1839.)

At a Meeting of the Asiatic Society held in the Grand Jury Room:—

The Honorable Sir E. Ryan, President, in the chair.

Read the Proceedings of the last Meeting.

Dr. Martin was proposed by Dr. O'Shaughnessy, seconded by the President.

Dr. Bain was proposed by the Officiating Secretary, seconded by the Bishop of Calcutta.

Professor Agassiz was proposed as an Honorary Member by the President, seconded by the Bishop of Calcutta.

The Nomination was referred to the Committee of Papers.

Read a letter from the Secretary of the Royal Asiatic Society, acknowledging the receipt of presentation copies of Oriental publications, forwarded by the Society.

Read a letter from Professor Lassen to the address of Mr. James Prinsep, proposing that the Society should establish an agency in Bonn for the sale of Sanscrit publications, and bearing warm testimony to the great importance of Mr. J. Prinsep's recent discoveries; requesting also information on the subject of specimens of birds which may be procurable here.

Resolved—That the thanks of the Society be presented to Professor Lassen for his liberal proposal in respect to the agency for the sale of Oriental publications, which appears calculated to be very beneficial to the Society, and that the Officiating Secretary be requested to communicate with him on the subject, stating that the Society has entirely left with him the selection of an agent in Bonn for the sale of Oriental publications.

The Officiating Secretary then read several applications for the situation of Curator, vacated by the departure of Mr. Jameson, but as the candidates' qualifications had not been considered by the Committee of Papers to reach the standard required by the Society,—

It was proposed by Dr. O'Shaughnessy, seconded by Captain Forbes—That Dr. M'Clelland be requested to accept the office of Curator, on the usual allowances.

Dr. M'Clelland returned thanks to the Society, and expressed his readiness to forward the views of the Society in any manner that he was able; but

he regretted that in consequence of his official duties he would not be able to devote more than two hours in the morning to the duties of the Museum. He further stated, that if he accepted the situation on the usual allowances he should beg to condition, that as long as he was Curator no subscriptions be received from members for the preservation of the various collections in the Museum—the whole amount of the salary should be devoted to that object.

The President said that though the offer was very liberal, yet the Society he thought ought to meet from its own funds all such expenses as might be recommended by Dr. M'CLELLAND, without sacrifice to his personal allowance. Dr. M'CLELLAND consented that the appointment should stand on this footing.

Read a letter from Dr. G. VANDENBURGH, of Bonn, touching a box of shells sent by the Society. The names having been detached from the shells, he solicited the Society to transmit another supply, correctly labelled and packed. Resolved—That the letter be referred to the Committee of Papers.

Library.

The following Books were presented:—

Proceedings of the Geological Society of London, for 1837, 5th Part, Vol. 2—Part 2, of 1838 and Vol. 2, Part 3, for 1839——*by the Society.*

History, Antiquities, Topography, and Statistics of Eastern India, by Mr. MARTIN, London 1838, royal 8vo. 3 vols.——*by the Government of India.*

Pickering's Remarks on the Indian Languages of North America—*by the American Philosophical Society.*

Ditto Eulogy on Dr. BOWDITCH, Cambridge, 1838,——*By ditto.*

Translation of the Arabian Nights, by Moonshee SHUMSUDDEEN AHMUD, in Hindee, Vol. I,—2 copies.

Mathematical Principles of Mechanical Philosophy, by the Rev. J. H. PRATT—*by the author.*

The following received from the Booksellers:—

Lardner's Cabinet Cyclopædia on Probabilities.

History of British Birds by W. YARRELL, Nos. 1 to 9.

Museum.

Various skins and specimens were presented in the name of Mr. JAMES MIDDLETON.

Antiquities.

The Officiating Secretary exhibited to the Meeting drawings of Col. STACY's coins cut on type-metal by HURREEMOHUN, a Native Artist, employed in the Calcutta Mint.

Read a letter from Mr. T. H. SALE, of Sylhet, forwarding a facsimile of an inscription taken by him at Gohattee.

A similar donation was received from Lieut. MCGREGOR, obtained from the ruins of a fort he was taking down The character in which the inscription was written was clearly legible, but no meaning could be gathered from the sentences.

Captain JAMES LOW forwarded a paper on the Laws of Siam. Referred to the Committee of Papers.

In pursuance of the resolution of the last Meeting, Mr. SUTHERLAND stated that the Commentary compiled by PREMCHUND NYARUTRA was more compendious than the works from which it was taken, but seemed to him calculated to answer all the purposes required. It was a continuation of that printed in the first volume of the work in question,

and had the same merits and defects, but in consequence of some doubt as to whether the Commentary so prepared was likely to be acceptable to Sanscrit students, Mr. JAMES PRINSEP had sent to Benares for the Commentary at length.

It was therefore proposed by Mr. H. T. PRINSEP, seconded by Captain W. N. FORBES—That the best mode of clearing up the difficulty would be to send copies to the Sanscrit Colleges of Benares and Calcutta, and also to Messrs. HODGSON and WILKINSON, requesting them to favor the Society with their opinion on the merits of the work in its present form, and the expediency of continuing its publication.

The proposition was unanimously agreed to.

Read an application from Newab TAHAWUR JUNG, requesting the Society to make a representation to Government on the subject of a subscription for a certain number of copies of the "*Shara'ya Islam*," the publication of which had been undertaken by himself in conjunction with the Society, and copies of which might probably be required for the use of the Courts or of the Seminaries of Education supported by Government.

Resolved that the request be complied with.

Col. BENSON handed over to the Officiating Secretary a letter he had received from the vicinity of Amarapoora, dated 23d March, containing an account of an awful earthquake that had occurred in that country.

On the conclusion of the general business of the evening, Mr H. T. PRINSEP stated that he was happy to have it in his power to inform the Meeting of a very distinguished honor that had been conferred upon a Member of the Society, whose selection for the unsolicited distinction was a compliment paid to the whole body.

It had fallen to him, Mr. P. stated, to be the official channel for transmitting to Mr. HODGSON, of Nipal, the diploma and letter of appointment as Chevalier of the Legion of Honor of France, which the enlighteued Government of that nation had conferred upon this gentleman, in acknowledgment of his successful labours in the elucidation of various questions of Budhistical faith and doctrine, and in the discovery and procurement of the volumes "*Kahgyur*" and "*Stagyur*," in which a vast mine of curious literature had been concealed, no less than as a tribute due to his zeal in discovering and making known a great variety of new objects of Natural History and Science.

It was heretofore a rare thing to see the Societies of Europe paying tribute to the worth and services rendered to Science and Literature by the learned, in this distant quarter; but of late years their merits had worked out for them a reputation which was now universally acknowledged. Still admission on the ground of literary and scientific attainment to the distinctions conferred by the Sovereigns of other countries was a compliment that Mr. HODGSON only had yet received; and Mr. PRINSEP added, he felt assured that the Society would be glad to have the circumstance placed upon the Records of its Proceedings. Mr. P. then communicated a copy of the diploma of appointment as Chevalier of the Legion of Honor which had just been received, having been transmitted through the Honorable Court of Directors to the Government, to be forwarded to Mr. HODGSON. Ordered to be deposited.

Art. XII.—*Proceedings of the Asiatic Society.*

(Wednesday Evening, the 5th June, 1839.)

At a Meeting of the Asiatic Society held in the Grand Jury Room:—

The Honorable Sir E. Ryan, President, in the chair.

Read the Proceedings of the last Meeting.

Drs. Martin and Bain, proposed at the last Meeting, were ballotted for, and duly elected Members of the Society.

Professor Agassiz, of Geneva, proposed at the last Meeting, was upon the favourable Report of the Committee of Papers, elected an Honorary Member of the Society.

Dr. T. A. Wise was proposed by Sir Edward Ryan, seconded by Dr. O'Shaughnessy.

Library.

Read a letter from John Washington, Esq., Secretary Royal Geographical Society, forwarding for presentation the following works, and stating that any Geographical and Statistical Documents would be acceptable in return :—

Transactions of the Geographical Society, 8 vols.

Translation of Grah's Voyage to Greenland.

Read a letter from Mr. N. Grant, forwarding for presentation, in behalf of Mr. Stanisforth, a copy of the Histoire de l'Academie Royale des Inscriptions et Belles Lettres, &c. in 51 vols.

Read a letter from J. P. Grant, Esq., Secretary to the Government of India, Revenue Department, forwarding for presentation the following Books :—

Illustrations of Indian Botany, No. 9, and Figures of Indian Plants.

Antiquities.

Five Greek Coins, obtained at Delhi by Mr. J. Robinson, were presented by J. W. Grant, Esq.

Three Copper Coins were presented by Dr. G. G. Spilsbury.

Lieut. McGregor forwarded facsimiles of various inscriptions.

Mr. E. C. Ravenshaw communicated a few inscriptions, collected by him in a late tour through the district of Behar. (Printed in this Number.)

A Tamba Patra with its translation and note on the same, were presented by H. T. Prinsep, Esq. (This Paper is printed in the April Number.)

Physical.

A Table shewing the Mortality in 13,019 fatal cases in Hindus, distinguishing the diseases and duration thereof, by Dr. Duncan Stewart, was read and ordered to be inserted in the Journal. (Printed in the April Number.)

The Officiating Secretaries apprized the Meeting of the completion of Part 2. Vol. 20 of the Asiatic Society's "Literary Researches."

Resolved—That copies be distributed to the members.

Art. XIII.—*Proceedings of the Asiatic Society.*

(*Wednesday Evening, the 3rd July*, 1839.)

At a Meeting of the Asiatic Society, held in the Grand Jury Room:—

The Honorable Sir E. Ryan, President, in the chair.

Dr. T. A. Wise proposed at the last Meeting, was ballotted for, and duly elected a Member of the Society.

Read a letter from J. K. Kane, Esq. Secretary of the American Philosophical Society, acknowledging receipt of several Nos. of the Journal of the Asiatic Society, old series.

Library.

Read a letter from H. T. Prinsep, Esq. Secretary to the Government of Bengal, General Department, forwarding for presentation the following printed copies of public records:—

Proceedings and Ordinances of the Privy Council of England, vols. 6th, and 7th, 1837, royal 8vo.	2
Kalendars and Inventories of His Majesty's Exchequer, vols. 1, 2, 3, 1836, royal 8vo.	3
Documents and Records illustrating the History of Scotland, 1837, vol. 1st, royal 8vo.	1
Excerpta é Rotulis finium in turri Londinensi Asservatis Henrico Tertio Rege, 1836, vol. 2d, royal 8vo.	1
Rotulorum Patentium et Clausorum Cancellariæ Hiberniæ Calendarium, 1828, vol. 1st, part 1, royal folio, ...	1
Rotuli Chartarum in turri Londinensi Asservatarum, 1837, vol. 1, part 1, royal folio, ...	1
Inquisitionum in Offic. Rot. Can. Hiberniæ, Repertorium, vol. 1, Lagenia, 1826, et Ultonia, 1829, vols. 2, royal folio, ...	2
Report (General) of the Commissioners on Public Records, 1837, royal folio.	1
"The Record of Cærnarvon," Registrum Vulgariter Nuncupatum é Codice M. Sta. Harleiano 696, Descriptum, 1838, royal folio, ..	1

The Officiating Secretary apprized the Meeting that the Geological Society of London has complied with the Society's application for a duplicate copy of the deficient part of the 4th vol. of their Transactions.

Read a letter from the Rev. W. Yates, forwarding for presentation a copy of his translation of the Psalms of David, in Sanscrit Verse, and offering to supply copies for distribution to all the learned institutions with which the Society exchanges its publications.

Journal of the Academy of Natural Science of Philadelphia, 1837, vol. 7th, part 2d, 8vo.—*presented by the Academy.*

Kittoe's Illustrations of Indian Architecture, Nos. 3, 4,—*presented by the Author.*

Chinese Repository, vol. 6th, from January No. 9 to April, 1838, No. 12.

Ditto ditto vol. 7th, from May No. 1 to September 1838, No. 5,—*presented by the Editors.*

New Testament in Hindustání, royal 8vo.—*presented by the Baptist Mission Press.*

From the Booksellers.

Naturalist's Library, Mammalia, vol. 8th, ... 1
Lardner's Cabinet Cyclopedia, History of Denmark,
History of British Birds, by W. YARRELL, London, 1839, parts 10th and 11th, ...

Antiquities.

Read a letter from H. T. PRINSEP, ESQ., forwarding on behalf of the Government of India for deposit in the Asiatic Society's Museum a Silver Plate from Kotah.

To the Secretary of the Asiatic Society.

Political Dept.

SIR,—I am directed by the President in Council to request you will lay before the Meeting of the Asiatic Society the accompanying Silver Plate received by Government from Kotah, where it is stated to have been used for taking observations of altitude and distance.

2d The plate has been for sometime in the Government Toshakhanah, and His Honor in Council does not think that he can dispose of it more usefully than by presenting it for deposit in the Museum of the Asiatic Society.

I have the honor to be, Sir,
Your most obedient servant,
H. T. PRINSEP,
Secy. to the Govt.

Council Chamber, 26th June, 1839.

A description and drawing of this plate will be given in a future number,

Mr. R. DAVIDSON forwarded a bag of leaden Coins for presentation to the Society; the donor has promised to send descriptive notice upon a future occasion.

Mr. W. LOCKE, of Chuprah, forwarded three large slabs with inscriptions, for presentation to the Society.

Mr. H. T. PRINSEP submitted to the Meeting a palm leaf manuscript having the appearance of great antiquity, and which from the circumstance of there being no separate note of the date of copy is presumed to be the original as prepared by the commentator, near 800 years ago. The *Pothi* came by dawk to Mr. PRINSEP's address from Col. ALVES, who forwarded it from Rajwara shortly before he left that country for the Cape of Good Hope, but sent no letter with it explanatory of his wishes or intentions. It is presumed that this is the work referred to in the Proceedings of the 5th April, 1837, vol. vi. p. 240, and therein mentioned as the "*Baudh mat Jain mary grantha,*" and which the Society then expressed the desire to obtain. Mr. PRINSEP added that the manuscript had been put into the hands of KAMALAKANTHA for ascertainment of its value and character. It proves to be a copy of the *Sama Vaya*, in the Maghadhi Bhosha by JINESHWAR, a Jain, with a commentary in Sanscrit by ABHYA DEVA, composed in 1119 Sumbut, corresponding with 1063 A. D.

The work begins with an exposition of the Boodhist religion as professed by Jains, including the worship of *Harr*, *Hora*, and *Hiranyagarba*, i. e. of *Vishnu*, *Siva*, and *Brahma*. Then follow discourses—on Dharma and Adharma, showing what is religion and what irreligion, and on the qualities and perfections of *Bhugwan Sakhya Boodh*. On the virtue of abstaining from taking animal life, and of truth and honesty. A resolution of all things to one God. On the place of abode of *Devas* and their means

of locomotion. An explanation of regeneration, and the course of life by which the future birth and condition are affected By what course of action the mind is to be brought into a state of purity and immunity from worldly passion. What sins are fallen into from association with women and loose companions.

On the measurement and depth of the Ocean.

On mental abstraction and worship. On food. What is proper and what improper to be eaten. On times for worship with reference to phases of the Sun and Moon. On behaviour to Gooroos and persons of sanctity. Ditto in assemblies of Jains. On logical proofs and the means of verification.

On the twelve motives of action in man.

On the *Saméra* mountain, its locality, height, &c. It is described as having day only on one side at a time, the other side being in the shadows of night, and as being always to the north of every other country. This description would make it the north pole.

On the size of the Earth and its seven Dweeps.

On the *Bharut Barta*, that is the civilized world of Hindoostan, and the *Ayjya Barta* from the Himalaya to the Bind mountains in Rajmahal, including Behar, which is described as the site of all excellence and the birth-place of *Bhugwan Sakhya Boodh*, and full of sacred places of pilgrimage, of learned men, and authors of holy books.

The work closes with two slokas in praise of JINESHWAR, the author of the original treatise in the Maghadha language. The commentator describes him as the author of Granthas, and his own Gooroo or spiritual teacher. The Pundit KAMALAKANTHA concludes the meaning to be, that he is the author of this particular work the "*Sama Vaya*;" but the Jain Pundits declare the treatise to be of much greater antiquity than the commentary, and construe the expression "author of Granthas" as merely describing him as an author, not as the author of the particular work.

Ordered that the book be deposited, and that the thanks of the Society be conveyed to Col. ALVES for this valuable addition to its Library.

Physical.

Various specimens of fossils were forwarded for presentation by Dr. G. G. SPILSBURY.

Read a letter from M. A. D. DE CASANOVA, intimating that His Majesty the King of Oude has forwarded through his Minister the Nawab MAHAMED ALI KHAN, for presentation to the Society, skeletons of an Elephant, of a Camel, and of a Tiger, prepared by the writer of the letter.

Read a letter from H. T. PRINSEP, Esq., transmitting copy of a letter from Mr. Assistant Surgeon PEARSON to his address regarding specimens of a fragrant wood, leaves, and bark, found by him in the Darjeeling hills—also of a mineral occuring in the same locality.

The tree in question is doubtless the *Cinnamomum tamala*, common on the lower range of hills, and which affords the *Tezpat* of the bazars. The mineral is identical with the coarse Plumbago discovered by Dr. CHAPMAN in 1837.

To the Officiating Secretary to the Asiatic Society.

Political Dept.

SIR,—I am directed by His Honor the President in Council to transmit to you the enclosed copy of a letter from Mr. Assistant Surgeon PEARSON, under date the

10th ultimo, together with specimens of a fragrant wood and other articles found in the mountains of Darjeeling, and to request the opinion of the Society as to whether the articles are a valuable product.

I have the honor to be, Sir,
Your most obedient humble servant,
H. T. PRINSEP,
Secy. to the Govt. of India.

Fort William, 12th June, 1839.

To H. T. Prinsep, Esq., *Secretary to the Government of India, &c. &c. &c.*

Sir,—I have the honor to forward for the consideration of the Government, and presentation to the Asiatic Society, should it be deemed fit, a specimen of a fragrant wood found in these mountains, the leaves of the tree of the same, a gummy substance found in the Morung, and a mineral I discovered between Pemkabarry and Idwisean-gurry; in the hope that they may be found useful.

The tree from which these specimens were taken was about nine inches in diameter, and twenty-five or thirty feet high. The bark and the wood appear to be equally fragrant, and the odour to be developed by the application of a gentle heat; along with the wood are a few detached pieces of bark.

The leaves of the above tree are called *Tej-Putta*, or *Tez-Path*, or some such name, as I am told; and are used in curry as a *mussala*. If so, the tree is probably well known to others, though new to me; but I doubt if the fragrant quality of the wood is known.

The gum is common in the Morung, and may be collected in large quantities if thought worth the trouble.

The mineral is in a considerable quantity by the road side. I have not the means of analysis, but it appears to me to possess some of the qualities of plumbago. I had neither means nor time to search for purer specimens, but if my conjecture is correct, this mineral promises to be useful for machinery, and some of the purposes of inferior black lead. I have said that it appears to be a sort of plumbago, and I may point out how near some of it looks allied to micaceous schist, from whence, again, the transition is easy to some of the forms of gneiss. I have, &c.

(Signed,) J. T. PEARSON,
Asst. Surgeon.

Darjeeling, 10th May, 1839.

(True copy,) H. T. PRINSEP,
Secy. to the Govt. of India.

Read extracts from a letter from M. Alphonze Bazin, Baron du Chanay, &c., with reference to a project of an Electro-Hydraulic Telegraph for effecting correspondence between Calcutta, London, and the rest of the world. An analysis of the memoir was given, specifying construction and expenses. The illustrative drawings and plans were also exhibited.

Proposed by Dr. O'Shaughnessy, seconded by the Lord Bishop of Calcutta, and carried unanimously—That a Sub-Committee of the Society be appointed to examine and report on the project to the next Meeting, to be held in the first week of August.

M. Alp. Bazin communicated through the Secretary to the Meeting, that his political engagements, and the unsettled state of European affairs, rendered it absolutely necessary that his plans should be examined and reported on without delay, and he named the 12th July as the longest period he could wait the decision of the Society.

It was thereon explained to M. BAZIN by the Secretary, that the rules of the Society did not permit a reply being given within the period proposed; and that the project was so vast and extensive that it required to be studied with proportionate deliberation. M. De BAZIN still pressing for an early reply, it was proposed by the Honorable Sir Edward RYAN, President, seconded by the Honorable Sir John Peter GRANT, and unanimously agreed to—

That the memoirs, plans, estimates, drawings, &c. communicated by M. BAZIN be returned to that gentleman with the usual acknowledgments.

The Officiating Secretary then read the following Memorandum on the Society's finances, income, and expenditure:—

To the President and Committee of Papers of the Asiatic Society.

GENTLEMEN,

I have to solicit your attentive and immediate consideration of the circumstances I am about to bring to your notice regarding the state of the finances of the Society.

The subject divides itself under two sections—1st, the liabilities of the Society for past causes of expenditure; and, 2d, the current or monthly expenses on the scale at present sanctioned.

Our liabilities under the first head amount to the large sum of Rupees 16,530, and proceed from three items—7348 Rupees due to the Baptist Mission Press for the publication of the "*Mahabharata*" &c.; 1182 Rupees to Bishop's College Press, for the publication of the Volume of the Transactions just issued; and 8000 Rupees to Messrs. Sherriff and Co. due on the completion of the new buildings now in progress.

Our current *Monthly Expense* meanwhile amounts to 1373 Rupees, as specified in the undermentioned items:—

Oriental Publications, ...	500
Establishment for the custody of Oriental Books transferred from the College of Fort William, ...	78
"Journal" supplied to 126 members at 1/8 per mensem, ..	207
Secretary's Office, ...	85
Museum Establishment, including allowance to Curator of 150 Rs.	238
Museum Contingencies, ...	77
General Contingencies, ...	25
Library, ...	163
(annas and pice not included) Total, Rs.	1,373

The balance now in hand of our funds in Government Securities amounts to Co's Rs. 20,800 at 4 and 5 per cent., of which 4730 Rs. have accumulated from the monthly Government allowance of 500 Rs. as shewn in the margin, and are applicable to no other purpose but Oriental publications.

Our *Monthly Income* stands thus:—

Average payments by members, as shewn by experience of four past years, ...	400
Government grant for Oriental publications, ...	500
Ditto ditto for custody of Oriental Books, ...	78
Ditto ditto for Museum and Library charges, ...	200
Interest on balance, allowing for the full payment of debts, ...	28
Total, Rs.	1,206

Shewing an excess of expenditure beyond our income of 167 Rupees per mensem.

We have consequently to consider the best mode of discharging our accumulated debt, and of reducing our monthly expenditure so as to bring it clearly and certainly within our monthly income.

With reference to the contract with Messrs. Sherriff and Co. for our new buildings, a resolution of the Society directs our defraying the amount of this item by the sale of the necessary sum from our Government Securities. This will reduce our capital to 12,800 Rupees, yielding a monthly income of 42: 10: 8.

The bill to the Baptist Mission Press is so long due, and of such considerable amount, that we must take immediate steps to place it in course of liquidation. The Bishop's College Press demand has been made, moreover, under circumstances which render it a matter of justice to that establishment that the amount should be paid with as little delay as possible.

I have therefore to beg your sanction for a further sale of our Securities to the amount of 1182 Rs. to be paid to Mr. Ridsdale for the part of the "Transactions" now published. This reduces our capital to 11,618 Rupees.

To meet the Baptist Mission Press claim, I propose—1st, that we make over the balance of 4730 Rupees, applicable to Oriental publications, and accumulated from our Government allowance of 500 Rs. per mensem; and, 2dly that for the balance of 2618 Rs. of the same account we pay a monthly instalment of 500 Rupees, applying thereto the allowance we receive from Government for Oriental publications; and that pending the payment of these instalments, we discontinue all Oriental printing, translations, &c. by which a further debt must otherwise be contracted.

Our capital thus freed from all incumbrance will be reduced to the scanty sum of 6888 Rupees.

Should these propositions be agreed to, we will still possess funds to the amount of 6888 Rupees, which it seems expedient to reserve for one object alone, namely the publication of future volumes of Transactions of the Physical Class.

I must here mention two sources of expenditure almost immediately before us, at all events to be met in the course of the year; I allude to the forthcoming volume of Researches of the Physical Class, and the furnishing of the new Museum apartments. For the former, as already shewn, I fear we must have recourse to our "Securities." The means for the latter (which may be estimated at about 1200 Rupees) I would propose to collect by subscription among the members of the Society.

Current Expenditure.

From the items above specified, it is evident that we now expend per mensem 167 Rs. beyond our income. We must accordingly either reduce our establishments within corresponding limits, or devise some means of increasing our permanent pecuniary resources.

I proceed to take up the items of our expenditure *seriatim*, which will enable us to see where the pruning knife may be most advantageously applied.

1. *Oriental Publications*—500 Rupees.

This sum we are bound to expend, whether in new works, or in paying for the old by the instalments, as above suggested.

2. *Journal*,—supplied to 126 members @ 1/8 per No. and 12 Nos. to learned Societies.—207 Rupees

I wish heartily it were in my power to offer the Journal to the Society on more favorable terms, but the bills circulated to the Committee for the first quarter of the periodical, shew that it is only the support of the Society to its present extent that can permit the continuance of the Journal in a respectable shape. The plates alone for No. 4 will cost over two hundred and seventeen rupees.

The question as to this item of expense thus evidently becomes one of the existence or discontinuance of the Journal. I am glad to say we have not lost more than six subscribers since the commencement of the New Series—not quite the average number of secessions in the same period of previous years.

3: *Secretary's Office and Contingencies—Items of expense :—*

Salary to Herambanath Thakoor, ...	60*
Sirkar, ...	10
3 Peons, ...	15
Stationery, Postage, Lighting, Wax-cloth, Cooly hire, &c.	25
Total, Rs.	110

* This Officer's salary was increased from Sa. Rs. 40, (Co's. Rs. 42 : 10 : 8) by a vote of the Society in January of this year.

4 *Museum*—Total charge, Rs. 305.

	Items.	
1st Taxidermist, ...	50	
2nd Ditto, ...	12	
2 Carpenters @ 8/	16	
2 Farashes @ 5/	10	
	—	88
Curator, on scale paid to Messrs. Pearson, Evans, and Jameson, ...		150
Contingencies on scale of last year (exceeded in the months of this year)		77
Total, Rs.		305

With reference to this Department, Dr. M'Clelland has favored us with a memorandum to the Committee, which I have had the pleasure to circulate in original.*

Dr. M'Clelland in this Paper gives a brief History of our Museum—glances at the principles on which it should be arrauged—offers suggestions as to the furniture required for our new rooms—and presents a plan (which appears to me an excellent one) for securing a correct nomenclature, by a system of correspondence with acknowledged authorities at home. Dr. M'Clelland then notices the expenditure for the past year in this Department, and which exceeded the Government grant of 200 Rupees monthly, by about 100 Rupees per mensem (total 1171 Rupees) from which only 240 Rupees were expended on cabinets or other permanent articles.

Dr. M'Clelland observes that the Head Taxidermist cannot write, and therefore cannot be entrusted with any important charge beyond his manual duties. The necessity however of having some well-informed man constantly in attendance to wait on visitors, &c. is justly pointed out, and it is recommended that the Assistant Librarian, Mr. Bouchez, who now receives 30 Rupees, be appointed to the charge on an increased salary, say to 50 or 60 Rupees.

* Inserted in this Number, page 415.

By this arrangement from 70 to 80 Rupees monthly would still be available for petty expenses, without exceeding our Government allowance "exclusive of cabinets and Curator's salary."

Dr. M'CLELLAND then proposes that the office of Curator should be *honorary* and *temporary*;—that instead of permanently employed carpenters, native shekarees and collectors on the same allowances, be maintained; lastly, that some well educated youth, having a taste for Natural History, should, if possible, be selected from one of the public Schools to conduct the duties of the subordinate establishment of the Museum. But this seems to be unnecessary were the Assistant Librarian employed as advised by Dr. M'CLELLAND in the first part of his Paper.

Dr. M'CLELLAND concludes by stating, that he does not object in *principle* to our maintaining a *paid* Curator, and that "should the means exist after defraying *essential* expenses," that some specific sum "a nominal salary of 30 rupees per mensem, for example, be given to the Curator, or a larger sum if consistent with the Society's means."

I have also circulated a copy of the "Rules for our Museum" which Dr. M'CLELLAND suggests, and I now beg leave to propose, that they be adopted, with this modification, that "the Curator be requested to accept the sum of 50 rupees per mensem for his "*conveyance expenses*," the Society at the same time placing on record a public declaration of their obligations to Dr. M'CLELLAND, for the liberality and zeal for the interests of Science he displays on this occasion.

It will be necessary also to allow a Writer and Duftury to enter the correspondence, and keep the books of the Museum.

This arrangement will reduce the Museum Expenditure as follows:—

Reduced Museum Scale:—

Curator's conveyance allowance, ...	50
Head Taxidermist, ...	50
Second Ditto, ...	12
Attendance of Assistant Librarian, ...	20
1 Shekaree, ...	8
2 Farashes @ 5, ...	10
2 Collectors, ...	16
Writer, Duftury, and Contingencies, say, ...	34
Total, Rs.	200

5. *Library.—Items of expense.*

1 Librarian, ...	100	0	0
1 Assistant Ditto, ...	30	0	0
1 Duftury, ...	8	0	0
2 Derwans, ...	12	0	0
1 Farash, ...	5	0	0
1 Gardener, ...	4	4	0
1 Sweeper, ...	4	4	0
1 Seeulgur, ...	2	2	0
Contingencies, ...	5	0	0
Total, Rs.	170	10	0

At present I do not think it possible or desirable to effect any reduction in this Department. Should any vacancy occur while our funds still demand reduction of ex-

pense, we might promote the present Assistant Librarian on a small advance of salary; this would save about 80 rupees per mensem. But such a contingency it is to be hoped is far distant, as the Society is most fortunate in now possessing in M. Csoma De Korosi a Librarian of equal celebrity and erudition.

I now beg leave to recapitulate briefly the measures I would suggest in order to extricate us from our old debt and bring our expenditure nearly within our income.

1st. The immediate payment of 1182 Rupees to Mr. Ridsdale, of Bishop's College Press.

2d. The payment of 4730 Rupees cash, and an instalment of 500 Rupees per mensem to the Baptist Mission Press, and the suspension of Oriental publications until the debt of 8000 Rupees is liquidated.

3d. The arrangement of the Museum on the scale above noted.

4th. The opening of a subscription for 1500 Rupees to provide furniture, cabinets, &c. for the new rooms.

On completing these arrangements our *Expenditure* will be:—

Library, ...	170	
Museum, ...	200	
Journal, ...	207	
Oriental Publication Debt, ...	500	
Custody of Oriental works, ...	78	
Secretary's Office, ...	110	
	——	Total, Rs. 1,265

And our *Income* :—

Government allowance for Oriental publications,	500	
Ditto for the custody of Oriental Books, ...	78	
Ditto for Museum, ...	200	
Average of Subscriptions, ...	400	
Interest on Government Securities	28	
	——	Total, Rs. 1,206

shewing, lastly :—

Income, ...	1,206
Expenditure	1,165
Excess of expenditure still,	Rs. 64

To meet this deficit we must unfortunately draw on our scanty cash balance every month until some opportunity presents itself for bringing our income and outlay on an exact par; meanwhile we must adopt one principle firmly, namely—"to allow no expense under the item of 'Contingencies' to be passed in any Department without the special order of the Committee of Papers."

(Signed) W. B. O'SHAUGHNESSY,
Offg. Joint Sec. Asiatic Society.

19*th June*, 1839.

The sense of the Meeting having been taken by the President, was declared unanimously favorable to all the above propositions except the 4th. These were accordingly adopted and will be acted on from the first of August. Instead of a subscription it was decided by the Meeting to furnish the new rooms from the cash balance remaining, and that no appeal should be made to the members for extra aid, as long as any funds remained available.

Meteorological Register, kept at the Assay Office, for the Month of May, 1839.

Day of the Month.	Forenoon, 10 A. M.															Afternoon, 4 P. M.												
	Atmospheric Pressure.		Temperature.				Hygrometry.			Aqueous tension.			Weather.			Atmospheric Pressure.		Temperature.		Hygrometry.			Aqueous tension.			Weather.		
	Old Stand Barometer.	Height at 32 Fah.	River Water.	Well Water.	Air.	Dew point.	Depression.	Differential thermometer.	Hair Hygrometer.	By Dewpoint.	By Wet bulb.	By Hair Hygrometer.	Wind. Direction.	Wind. Force.	Aspect of Sky.	Old Stand Barometer.	Height at 32 Fah.	Air.	Dew point.	Depression.	Differential thermometer.	Hair Hygrometer.	By Dewpoint.	By Wet bulb.	By Hair Hygrometer.	Wind. Direction.	Wind. Force.	Aspect of Sky.
1	29,600	29,595	86,1	80,3	89,8	75,5	5,5	7,1	92	61	78	82	S. E.	4½	cum. strat.	29,453	29,443	92,3	73,0	7,7	9,2	91	55	71	80	S. W.	6	nimbi threatg
2	,615	,594	86,7	80,1	91,3	75,0	10,6	10,8	87	60	60	72	S. E.	3	cirrus. hazy.	,479	,455	95,7	69,5	14,7	15,4	81	47	50	61	o. E.	2	fine. cirrus.
3	,649	,641	86,5	80,0	89,9	73,6	9,2	9,6	89	60	65	76	s. E.	2	eum. strat.	,527	,527	91,3	70,2	12,3	11,6	84	51	55	67	n. e.	2½	nimbi cy.
4	,590	,587	85,9	79,8	85,5	73,5	8,7	8,7	89	69	65	76	n. E.	1½	do. do.	,499	,495	93,9	66,0	16,4	16,4	79	42	43	57	n. e.	2	do. do.
5																												
6	,691	,690	85,6	79,6	83,2	76,5	7,0	6,8	92	81	70	82	n. e.	1½	over. et. eum.	,569	,569	88,8	74,3	10,2	10,3	87	41	60	72	n. e.	0½	eum. few.
7	,637	,633	88,0	79,8	84,5	75,6	7,4	7,6	90	69	69	78	n. e.	1	eir. cum.	,507	,504	92,1	74,3	12,1	11,9	85	57	55	68	s. w.	1	cum. strat.
8	,575	,573	88,2	80,1	88,1	76,0	7,3	7,1	93	64	70	84	s. w.	1½	nimbi.	,485	,483	88,7	73,7	9,0	8,3	89	62	65	76	n. w.	2	nimbi showy.
9																												
10	,646	,651	85,9	79,9	86,1	72,0	9,5	9,6	86	64	62	70	n. e.	1½	hazy.	,518	,509	90,5	72,6	11,8	11,2	85	57	55	68	o. e.	0½	haz.all day cy
11	,639	,640	87,6	81,2	87,9	75,5	6,7	6,8	92	68	73	82	s. w.	1	do.	,488	,479	94,1	75,0	11,8	12,0	85	55	57	68	o. e.	0½	haze
12																												
13	,669	,642	88,5	80,1	89,7	75,0	10,0	10,3	88	64	61	74	S. w.	3	eir.cum.	,512	,500	92,0	75,0	11,0	11,2	86	59	60	70	s. w.	1	cloudy
14	,671	,667	85,9	79,9	86,1	79,3	6,0	5,9	93	81	75	81	n. E.	2½	Showery.	,546	,513	89,2	77,2	8,5	8,9	89	68	66	76	S. e.	1½	eum. str. ovr.
15	,645	,629	85,9	79,8	86,7	76,8	7,7	7,6	90	81	69	78	e. s. e.	2½	cum.str.hazy.	,524	,514	91,2	75,0	10,9	10,9	85	60	60	68	n. o.	2½	em.do.gr.nm.
16	,612	,592	87,3	80,4	89,4	77,4	9,7	9,6	87	81	62	72	s. w.	0½	do. do. &cum.	,477	,460	94,3	74,3	12,8	12,8	83	54	55	65	n. e.	2½	cy. threatg.
17	,589	,580	87,7	80,2	87,1	75,0	8,7	8,7	89	68	65	76	o.	0	eir. cum.	,470	,414	92,4	74,0	11,4	11,3	81	57	58	66	s. e.	1	do. showery.
18	,598	,590	85,3	78,8	86,3	75,0	10,6	10,2	86	70	57	70	S. W.	6½	cy.shwy.drzl.	,439	,407	89,3	75,6	9,1	9,8	88	64	65	74	s. e.	0½	overct. eum.
19																												
20	,592	,571	85,7	79,8	84,5		4,6	4,9	94		80	87	n. w.	1	cloudy.	,482	,476	88,7	76,0	7,2	6,8	91	68	71	80	n. w.	0	nimbi
21	,571	,562	86,1	80,1	85,1	77,6	4,8	5,0	91	51	80	87	n. w.	1½	enm. groups.	,480	,468	85,9	76,4	6,1	6,1	92	74	75	82	n. e.	1½	do.
22	,564	,552	85,9	80,1	83,7	77,6	4,1	4,3	91	82	82	87	n. e.	2	Showery.	,437	,436	83,2	79,7	3,3	3,7	95	89	85	89	n. e.	1	cy. all day.
23	,580	,560	86,1	80,4	83,7	79,3	4,0	3,7	95	87	82	89	n. w.	1½	drizzle.	,426	,412	88,3	77,6	7,2	7,3	91	71	71	80	n. w.	2	do. nimbi
24	,517	,495	87,1	80,5	87,3	74,5	9,1	8,3	87	87	64	72	n. W.	1	overct. fine.	,405	,366	94,5	74,5	13,8	12,8	82	54	52	63	S. e.	2	eirri. cly.
25	,561	,544			84,1		5,1	5,0	93		78	84	s. e.	2	drizzle, mist.	,500	,480	86,7	75,6	7,1	7,0	91	70	71	80	s. e.	2	cy. mist.
26							6,																					
27	,604	,591	88,6	81,6	87,8	79,6	6,3	6,7	91	77	75	80	s. s. e.	3	eum. nimb.	,507	,485	88,0	77,6	6,0	6,2	92	71	75	82	s. e.	2	eum. nimbi
28	,615	,599	86,6	81,5	86,3	78,0	4,3	4,9	93	78	81	81	e. s. e.	1½	cy. haz. shwy.	,561	,553	83,4	77,7	4,6	4,7	93	83	80	84	s. e.	1	eir.cum.haze.
29	,636	,621			86,7	75,6	4,8	5,1	93	78	80	81	s. e.	1	do. do. shwy.	,531	,518	85,5	80,4	3,3	3,7	93	85	85	84	s. e.	1	cy. nimbi
30	,581	,555	87,7	82,0	87,5	75,0	7,1	7,5	89	67	71	76	s. o.	2	cumuli.	,430	,404	91,9	74,7	9,9	10,1	86	58	64	70	S. e.	2	cum.cir.haze.
31	,566	,540	88,1	81,8	88,5	74,8	7,3	7,9	89	65	70	76	s. e.	1	do. scattd.	,433	,407	90,7	74,0	9,1	9,3	87	60	65	72	S. E.	3	nimbi

Art. XV.—*Meteorological Register kept at the Surveyor General's Office, Calcutta, for the Month of June, 1839.*

Day of the Month.	Minimum Temperature observed at Sun-rise.						Maximum Pressure observed at 9 h. 50 m.						Observations made at Apparent Noon.						Maximum Temperature observed at 2 h 40 m.						Minimum Pressure observed at 4 p. m.						Observations made at Sun-set.						Rain Gauge.		Moon's Phases.	Day of the Month.
	Barometer.	Temperature.			Wind.	Aspect of the Sky.	Barometer.	Temperature.			Wind.	Aspect of the Sky.	Barometer	Temperature.			Wind.	Aspect of the Sky.	Barometer.	Temperature.			Wind.	Aspect of the Sky.	Barometer.	Temperature			Wind.	Aspect of the Sky.	Barometer.	Temperature.			Wind.	Aspect of the Sky.	Upper, was taken away being defective.	Lower		
		Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Direction.			Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Direction.			Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Direction.			Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Direction.			Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Direction.			Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Direction.					
1	29,487	81,9	79,8	79,6	Calm,	Clear,	,536	84,8	90,8	84,4	s. e. ..	cumuli,	,536	67,9	92,7	85,2	N. E.	Cumuli,	,460	85,7	94,0	86,1	E. b s.	cloudy (Nimbi & cum.,)	,452	85,7	87,5	83,2	S.	cloudy,	,452	83,5	84,4	81,9	s e. ..	cirro-strati,				1
2	,450	81,8	79,5	79,5	Calm,	Clear,	,499	85,7	88,8	85,7	s. e. ..	cumuli,	,475	66,6	90,8	84,4	E. b. S.	Cumuli,	,440	85,5	87,5	83,9	E. ..	cum. str.&Nimbi, (gather-	,428	84,9	86,0	82,5	S. E..	nimbi distant thunder,	,430	83,8	85,5	82,0	s, e. ..	cirro-strati and nimbi,				2
3	,400	82,0	81,9	80,0	Calm,	Cirro-strati,	,410	86,4	89,0	85,8	n. e. ..	cloudy,	,426	66,7	89,0	85,5	E. b.N.	Cloudy,	,396	85,5	86,5	84,3	E. ..	cloudy (Nimbi,) [ing.]	,380	85,0	85,5	82,9	E.....	cloudy (nimbi,)	,380	82,7	85,5	80,8	e. b. s.	nimbi interspersed,				3
4	,387	81,7	60,0	79,0	Calm,	Light Cirro-strati,	,410	84,8	87,9	85,5	e.. ..	cloudy,	,400	87,0	86,7	83,0	E. ..	Cloudy,	,350	84,5	84,0	82,0	E. ..	cloudy (Nimbi)	,344	83,0	81,5	81,0	E.....	nimbi interspersed,	,340	81,9	80,8	80,8	e.	nimbi interspersed.	0,42			4
5	,370	80,0	79,0	79,0	S. S..	Overcast rain,	,408	84,2	87,0	83,0	s. e. ..	nimbi rain, [sionally,)	....	....	....	....	.....	.....	....	....	....	....	.....	.....	,377	84,2	84,8	81,6	E. b. S.	nimbi,	,388	83,5	84,0	81,2	e. b. e.	cloudy,	2,00		)	5
6	,410	79,6	79,1	80,0	S. E.	Nimbi,	,462	83,4	86,0	83,5	s. b. e.	cldy. (nimbi rain occa-	,457	85,5	67,5	83,9	S. b. E.	Clearing,	,429	85,9	87,0	84,0	s. s. E.	cloudy,	,400	84,9	86,0	83,0	S.	cloudy.	,408	83,0	84,5	81,5	s.	nimbi interspersed.				6
7	,448	60,0	79,5	79,5	S.	Cloudy,	,504	84,5	87,0	84,2	s. b. e.	nimbi interspersed,	,483	67,0	88,0	84,0	S. ..	Cloudy,	,450	87,1	90,2	85,5	s. ..	cloudy,	,444	87,0	88,5	85,0	S. E...	cloudy (nimbi,)	,450	82,9	85,0	82,5	e. b. s.	cloudy,	0,03			7
8	,460	81,2	81,0	80,0	Calm,	Clear,	,520	84,5	85,2	83,0	s.,. ..	cloudy (nimbi,)	,506	85,7	67,2	84,5	S. ..	Nimbi interspersed,	,460	85,5	87,0	84,8	s. ..	cloudy,	,440	85,3	85,9	84,5	S.....	cloudy,	,446	83,0	83,5	81,5	calm,	cloudy,	0,05			8
9	,466	80,0	79,2	79,5	Calm,	Cirro-strati,	,506	83,4	84,9	82,8	s.... ..	cloudy (sunshine,)	,494	64,6	88,0	84,5	S. ..	Cloudy,	,447	84,6	88,5	84,8	s. ..	cloudy,	,435	84,6	87,9	84,6	S.....	cloudy,	,438	82,8	84,7	82,0	calm,	cloudy nimbi to the south	0,20			9
10	,440	80,2	79,0	79,0	Calm,	Cloudy,	,474	83,5	85,0	83,0	s.	cloudy,	,474	86,7	90,0	85,5	S. ..	Cloudy,	,422	87,3	91,0	86,2	s. ..	cumuli and haze,	,387	87,2	90,0	86,9	S.....	cumuli & haze, [shine,)	,394	83,6	86,0	83,8	calm,	cloudy and bazy,	0,36			10
11	,412	62,5	61,2	79,5	S. W.	Cldy. (Nbi. on the zenith,)	,462	85,0	87,5	82,3	s. w...	hazy,	,462	87,6	90,0	83,5	S. W.	Cldy,& Hazy (sunshine,)	,436	86,6	92,1	85,0	s. w..	cloudy & hazy (sunshine,)	,422	86,6	92,0	84,0	S. W.	cldy. & hazy (ligbt sun-	,426	83,0	86,6	83,5	s.	cirro-strati,			●	11
12	,446	82,5	80,9	80,0	Calm,	Cirro-strati,	,500	87,0	91,2	84,5	s. w...	A few cirro cumuli,	,500	90,3	93,5	85,0	S. W.	A few scattered Clouds,	,450	88,9	97,0	87,0	s. w...	generally clear,	,447	90,0	94,6	88,5	W.b.S.	to the w. light clouds,	,450	83,8	87,7	84,5	calm,	clear,				12
13	,444	82,8	61,9	80,8	Calm,	Clear,	,490	87,6	93,0	85,5	s. w...	clear,	,480	91,9	96,0	86,5	S. W.	Light haze, (Cum. strati,)	,440	92,0	96,2	88,8	s.w....	light haze,	,428	92,2	95,8	88,5	S. W.	light haze,	,436	85,0	88,0	86,2	calm,	generally clear,				13
14	,500	83,0	82,8	81,9	Calm,	Clear,	,564	87,8	91,0	87,0	s. w....	clear,	,557	89,9	93,2	86,9	S. ..	Detached Clds. to the N.	,508	90,2	96,7	88,7	s. e...	cum. strati to the north,	,478	90,0	93,9	87,5	S. W.	cumulo strati & cumuli,	,484	84,9	86,0	85,6	calm,	clear,				14
15	,604	63,3	81,5	81,5	Calm,	Clear,	,670	89,0	89,7	84,0	s.	cumuli,	,650	89,8	90,5	85,5	S. ..	Cumuli,	,580	90,0	96,5	86,0	s. ..	umulo strati,	,550	89,5	91,2	85,8	S.....	cumulo strati,	,557	85,8	85,3	83,2	calm,	ligbt cirro-strati,				15
16	,600	83,5	81,6	81,5	Calm,	Cirro-strati,	,650	86,0	89,5	83,8	s.... ..	cumuli,	,630	67,5	90,0	84,9	S. ..	Cumuli,	,576	88,9	93,4	85,5	s. ..	cumulo strati,	,550	88,8	90,0	84,7	S.....	cirro-strati,	,554	85,5	84,8	82,5	s.	hazy,				16
17	,538	62,5	81,0	81,0	Calm,	Cloudy,	,592	86,5	90,0	87,2	s. e. ..	cumuli,	,560	68,0	92,6	86,6	Calm,	Cloudy,	,543	85,0	83,5	81,5	s. ..	cloudy nimb. interspersed,	,540	84,2	83,5	81,5	Calm,	drizzling rain,	,546	84,0	82,8	81,2	e. b. s.	cloudy.				17
18	,560	63,5	81,0	81,0	S.	Cloudy,	,600	85,5	91,0	85,0	s. e. ..	cumuli,	,592	88,3	93,2	85,9	E. b. S	Cumuli,	,550	88,7	95,5	87,0	s. ..	cumulo strati,	,522	85,7	83,9	83,0	S.	nimbi interspersed,	,528	84,5	82,5	82,0	s. e. ..	cirro-strati,				18
19	,584	62,6	80,1	80,0	Calm,	Light Cirro-strati,	,647	85,6	90,0	84,5	s.... ..	cumuli, [cum.	,666	88,0	90,0	84,5	S. E.	Cloudy,	,640	88,5	92,2	84,8	s. e. ..	cloudy,	,818	87,6	91,5	84,5	S.....	cloudy,	,624	85,5	85,4	82,3	calm,	cirro-strati, [w. n. w.]	0,35		)	19
20	,548	83,2	81,0	81,0	S.	Cirro-strati,	,600	87,5	90,0	84,5	s.... ..	light clouds inclining to	,582	89,3	91,0	85,2	S. ..	Cumuli and Haze,	,524	87,6	88,2	84,2	s. ..	cloudy,	,478	86,7	87,0	84,0	S.....	cloudy,	,482	85,0	84,0	82,5	s.	cloudy,(threatening to the				20
21	,460	80,0	76,0	76,0	S.	Overcast raining,	,522	82,5	83,0	81,9	s... ..	overcast drizzling rain,	,510	83,0	83,0	82,1	S. ..	Cloudy Light Drizzling,	,442	83,5	84,3	83,0	s. ..	cloudy and misty,	,427	83,6	85,0	83,0	S.....	hazy & misty.	,430	83,0	83,8	82,0	calm,	nimbi interspersed,	3,86			21
22	,476	81,5	60,0	80,0	Calm,	Cirro-strati,	,632	82,5	84,3	83,0	Calm,	cloudy nimbi thunder,	,520	62,5	81,0	79,8	S. ..	Cloudy,	,470	82,0	82,0	79,0	s. ..	cloudy,	,450	81,0	82,2	81,0	S. E..	cloudy,	,450	80,8	81,5	80,2	calm,	cloudy,	0,19			22
23	,513	60,5	77,0	77,2	Calm,	Cloudy,	,660	81,0	81,5	80,9	s... ..	cloudy,	,542	62,0	81,6	82,0	S. ..	Cloudy Light sunshine,	,489	82,2	82,5	82,3	s. ..	cloudy and hazy,	,456	81,8	81,8	82,0	S. E...	cloudy,	,460	81,5	81,0	81,7	s.	cloudy (cirro-strati,)	0,24			23
24	,550	80,0	76,9	76,5	Calm,	Cloudy,	,615	81,7	85,5	85,0	s. e. ..	cloudy,	,600	81,6	85,9	83,3	S. E ..	Cloudy,	,546	82,0	84,5	83,2	s. ..	to the s. dense nimbi,	,540	81,9	82,2	82,2	S.....	nimbi rain,	,544	81,8	81,9	82,0	calm,	cloudy,	0,37			24
25	,600	61,0	80,8	80,5	Calm,	Cloudy,	,630	85,0	85,5	84,8	s.... ..	cloudy,	,620	85,7	86,0	83,0	S. ..	Cloudy,	,551	84,0	87,7	84,0	e. ..	cloudy and hazy,	,530	83,7	87,0	84,0	S.....	cloudy,	,542	83,5	85,0	81,9	s.	cloudy,	0,20			25
26	,549	60,5	78,0	78,0	S.	Cloudy (Cirro-strati,)	,576	83,2	85,0	82,8	s.... ..	cloudy partial haze,	,570	86,6	90,2	85,0	S. ..	Cloudy partially,	,536	86,0	90,2	84,0	s. ..	cloudy partially,	,510	85,5	88,2	83,4	S.....	partially cloudy,	,516	83,5	84,5	81,9	s.	light cirro-strati,				26
27	,494	81,8	60,8	80,0	S.	Cirro-strati,	,548	84,4	87,0	83,2	s.... ..	cumuli,	,546	86,3	89,0	84,1	S. ..	Cloudy and Cumuli,	,518	85,5	90,2	83,4	s. ..	haze,	,500	85,3	89,0	84,8	S.....	light baze.	,508	83,8	84,7	81,5	s.	light cirro-strati,			○	27
28	,500	61,5	80,0	79,9	S.	Cirro-strati,	,566	83,1	86,5	83,0	s.... ..	cumuli and haze,	,555	86,5	89,0	84,5	S. ..	Light Haze and Cumuli	,542	88,6	90,0	84,0	s. ..	cloudy and haze,	,528	86,0	88,5	84,0	S.....	haze and a few cum.	,530	84,0	85,2	81,3	s. w....	cloudy nimbi to the w.				28
29	,500	81,7	79,9	79,0	S.	Detacbed Clds. to the W.	,560	84,5	87,0	83,8	s. w...	nimbi rain,	,550	87,0	88,3	86,5	S. ..	Cloudy (Nimbi,)	,539	83,0	82,0	80,0	s. ..	cloudy,	,500	84,0	84,1	82,0	S.....	cloudy,	,520	84,2	84,8	82,9	s.	cloudy (cirro-strati,)	0,85			29
30	,530	82,0	80,0	80,0	Calm,	Cirro-strati,	,580	83,7	86,0	82,5	s.... ..	cumuli.	,559	85,5	86,8	83,0	S. ..	Cumuli,	,538	86,0	88,8	84,0	s. ..	cumuli,	,516	85,8	86,5	83,8	S.	cloudy (cumuli,)	,520	84,2	84,8	82,9	s.	cloudy (cirro-strati,)	0,85			30
31																																						31
Mean	29,491	81,6	80,0	79,7			,541	83,7	87,1	83,7			,536	86,7	89,0	84,4			,492	86,2	89,2	84,4			,469	85,7	87,4	83,8			,474	83,6	84,3	82,2				9,14		

Art. XVI.—*Meteorological Register, kept at the Surveyor General's Office, Calcutta, for the Month of July,* 1839.

Day of the Month.	Minimum Temperature observed at Sun-rise						Maximum Pressure observed at 9 h. 50 m.						Observations made at Apparent Noon.						Maximum Temperature observed at 2 h 40 m.							Minimum Pressure Observed at 4 p. m.						Observations made at Sun-set.						Rain Gauge.		Moon's Phases.	Day of the Month.
		Temperature.			Wind.			Temperature.			Wind.			Temperature.			Wind.			Temperature			Wind.				Temperature.			Wind.			Temperature.			Wind.						
	Barometer.	Of the Mercury.	Of the Air.	Of an Evapg. Surface.	Direction	Aspect of the Sky.	Barometer.	Of the Mercury.	Of the Air.	Of an Evapg. Surface.	Direction.	Aspect of the Sky.	Barometer	Of the Mercury.	Of the Air.	Of an Evapg. Surface	Direction.	Aspect of the Sky.	Barometer.	Of the Mercury.	Of the Air.	Of an Evapg. Surface	Therm. exposed to the rays of the sun.	Direction.	Aspect of the Sky.	Barometer.	Of the Mercury.	Of the Air.	Of an Evapg. Surface.	Direction.	Aspect of the Sky.	Barometer.	Of the Mercury.	Of the Air.	Of an Evapg Surface.	Direction.	Aspect of the Sky.	Upper.	Lower.		
1	29,530	82,1	80,8	80,0	Calm.	Cirro-strati.	,570	84,7	87,0	84,2	S.....	Cloudy.	,570	87,9	91,0	85,8	S.....	Cumuli.	,519	88,7	93,0	87,0	110,0	S.....	Cumuli.	,506	88,0	92,1	87,0	S.....	Cumuli strati.	,511	85,5	87,6	85,7	S.....	Nimbi interspersed.			●	1
2	,524	82,5	80,9	80,8	Calm.	Cloudy Drizzling	,570	81,6	81,5	79,9	S.....	Cloudy.	,560	82,2	83,0	81,0	S.....	Cloudy.	,537	83,0	84,2	81,3	.....	S.....	Cloudy and hazy.	,528	82,6	83,9	82,0	Calm.	Cloudy.	0,04	0,04	2
3	,500	82,1	80,0	80,0	Calm.	Cloudy.	,552	84,0	87,9	84,5	S.....	Cloudy.	,536	86,4	91,9	86,8	S.....	Cloudy.	,502	87,4	94,5	88,5	124,0	S.....	Cumuli strati & nimbi.	,490	85,9	89,5	85,5	S.....	Cloudy. [& cum.	,498	83,0	84,0	81,9	S.....	Cloudy.	0,04	0,04		3
4	,509	82,5	80,8	80,1	Calm.	Cloudy.	,560	83,9	86,0	83,0	S.....	Cloudy.	,550	84,4	86,9	83,9	Calm.	Cloudy.	,490	84,9	91,5	87,1	110,5	S.....	Cumuli strati & bazy.	,474	85,7	87,9	82,4	S.....	zenith clear rest haze	,480	83,7	84,8	82,0	S.....	Cirro-strati.	0,01	0,43		4
5	,500	83,0	81,9	80,9	S.....	Cirro-strati.	,544	84,4	88,0	84,7	S. W.	lt. cl. incl. to cum.	,522	86,8	91,0	86,8	S. W.	Nbi. cum.str.dist.thund.	,471	84,0	85,5	85,5	.....	.....	Overcast heavy rain.	,460	84,5	85,5	85,1	S	overcast thundering.	,474	82,9	83,0	82,9	Calm.	Nimbi drizzling			(	5
6	,422	82,2	80,0	80,0	Calm.	Cloudy.	,480	82,2	84,0	81,5	S. W.	Cloudy.	,474	82,5	83,0	81,1	S.....	Clouds cirro-strati.	,447	82,5	83,0	81,2	.....	S.....	Overct. cldy. & drizzlg.	,422	82,7	83,5	81,9	S.....	Cloudy. [spersed.	,426	82,2	81,9	80,5	Calm.	Cirro-strati.	1,33	1,38		6
7	,429	82,5	81,0	80,6	Calm.	Cirro-strati.	,490	82,8	88,0	84,9	S. E.	Cirro-strati.	,462	83,3	90,6	86,8	S.....	Clouds (Cumuli.)	,531	83,6	83,0	82,0	.....	S.....	Overcast nimbi rain.	,418	83,3	83,0	81,8	S.....	overcast nimbi inter-	,422	81,9	82,0	80,9	S.....	Cloudy.				7
8	,398	82,0	80,8	79,1	Calm.	Cirro-strati.	,430	83,2	89,0	85,1	S.....	Cumuli cloudy.	,426	86,2	88,0	85,2	S.....	Clouds (Cumuli.)	,370	84,6	88,0	84,5	.....	S.....	Cloudy.	,336	84,4	86,5	83,5	S.....	Cloudy.	,330	82,2	83,7	81,5	Calm.	Cirro-strati.	0,88	0,90		8
9	,390	81,9	80,0	79,0	S.....	Light cirro-strati.	,436	84,4	87,5	83,0	S. W.	Cumuli & nimbi.	,420	86,5	91,5	85,5	S.....	Hazy on the zenith.	,382	87,0	93,5	86,9	120,8	S.....	Cumuli strati & cumuli	,367	86,3	87,9	84,2	S.....	Nimbi interspersed.	,370	82,7	84,0	82,2	S.....	Cirro and cumuli strati				9
10	,410	82,1	80,8	80,6	Calm.	Cirro-strati.	,480	86,0	87,2	83,0	S. W.	Cumuli.	,452	86,9	93,0	86,5	S.....	cumuli & partial hazy.	,410	86,1	87,2	81,8	.....	S. E.	Cloudy.	,402	85,6	87,0	83,2	S. E.	Cloudy.	,408	82,2	83,5	82,0	S.....	Cirro-strati.				10
11	,400	82,0	81,8	80,8	Calm.	Cirro-strati.	,460	85,0	88,8	84,1	E. ..	lt. cl. incl. to cum.	,452	87,8	90,2	85,0	E. ..	cloudy.	,390	86,5	86,9	83,8	.....	e.b.s.e	Nimbi interspersed.	,374	85,6	87,0	83,7	S. E..	Nimbi and cumuli	,380	82,5	82,9	82,0	S. E. .	Nbi. (a pass. shower)			●	11
12	,420	81,6	80,0	79,0	Calm.	South Cloudy.	,470	82,6	82,3	81,0	S. E.	nbi. intd. lt. rain.	,470	83,3	85,0	82,5	S. E.	cloudy & haze lt. sunsh.	,462	83,0	84,0	82,9	.....	S. W.	Cloudy.	,462	83,3	85,0	82,9	S. E. .	Nimbi interspersed.	,478	82,0	83,0	82,5	Calm.	Cirro-strati & Nimbi.	0,40	0,43		12
13	,500	81,7	79,9	79,1	Calm.	Cirro-strati.	,576	81,3	88,0	83,0	S.....	Cloudy cumuli.	,574	85,5	88,0	82,9	S. W.	Cloudy Cumuli.	,540	86,4	87,0	83,0	.....	S. W.	Cloudy.	,500	86,0	88,0	82,0	S.....	Cumuli and haze.	,508	82,7	85,0	82,7	Calm.	Cirro-strati.	0,64	0,66		13
14	,521	81,5	80,0	79,0	Calm.	Cirro-strati.	,581	82,9	85,9	81,7	S.....	Cumuli & baze.	,577	82,8	87,0	82,5	S.....	Cloudy.	,536	84,5	90,1	83,4	.....	S.....	Cumuli.	,522	84,2	88,0	82,5	S.....	Cloudy and cumuli.	,529	82,5	84,9	82,0	Calm.	Cirro-strati.				14
15	,590	82,0	80,9	80,0	Calm.	Cloudy.	,632	83,9	84,9	82,0	S. E.	Cloudy.	,621	81,9	81,0	79,0	S.....	Nimbi, raining.	,606	82,7	84,0	81,5	.....	S. E.	Cloudy.	,584	82,5	84,0	81,3	S. E. .	Cloudy(Nimbi)frain.	,596	82,1	83,0	81,0	Calm.	Cloudy.	0,03	0,04		15
16	,600	81,8	80,0	79,0	S. W.	Cloudy Nimbi.	,666	77,7	75,0	75,0	S. W.	overcst. heavy rain.	,652	78,7	79,0	77,5	S. W.	Cloudy and Nimbi.	,638	80,5	80,8	78,3	.....	S. W.	Cloudy.	,625	79,9	79,5	78,0	S.....	overcast nbi. drizzling	,636	79,5	79,2	78,0	Calm.	Overcast raining.	1,68	1,79		16
17							,689	78,4	77,0	76,8	s. b. w.	overcast raining.	,689	80,7	82,0	79,0	S. W.	Cloudy.	,671	80,5	79,5	77,5	.....	S. W.	Cloudy and rain.	,650	80,0	79,2	77,3	S.....	overcast raining.	,656	79,5	77,5	76,0	S. W.	Overcast raining.	0,40	0,44		17
18	,602	79,2	77,0	76,9	S. W.	Cloudy Drizzling	,674	78,8	79,5	77,7	S. W.	cloudy & drizzling	,656	78,0	79,0	77,0	S. W.	Cloudy Nimbi drizzling.	,600	79,9	81,0	79,5	.....	S.....	Cloudy.	,573	79,9	80,0	78,9	S. W.	very cloudy (Nimbi.)	,580	79,3	78,2	76,5	S.....	Nimbi light drizzling.	1,98	2,10	)	18
19	,580	79,0	79,0	78,5	S.....	Cloudy.	,596	82,2	86,0	81,9	S. W.	Cirro-strati & cli.	,577	84,8	89,9	83,5	S. W.	Cumuli.	,542	84,9	89,0	83,2	107,0	S.....	Cirro-strati & Cumuli.	,522	83,5	87,1	83,0	S.....	Cirro-strati.	,540	82,3	83,5	81,2	Calm.	Cirro-strati nbi. inter-	0,05	0,06		19
20	,574	80,0	79,6	79,0	e. b. s.	Cloudy & Misty.	,620	82,3	87,5	83,0	e. b. s	Cumuli.	,620	85,5	90,0	83,4	s. b. e.	Cumuli & lt. N. ztb. clr.	,590	84,5	88,0	83,5	.....	E. ..	Nbi. int. a pass shw.	,567	83,4	84,2	81,2	E....	Nimbi.	,574	82,0	81,9	80,8	Calm.	Cirro-strati. [spersed.	0,12	0,13		20
21	,564	80,5	80,0	79,1	Calm.	Cloudy.	,612	82,5	87,0	83,2	E. ..	Cumuli.	,609	83,7	89,9	84,5	E. ..	Cumuli.	,574	83,0	87,2	83,0	.....	E. ..	Nimbus rain. [clear.	,550	83,2	87,0	83,0	E....	Nimbi interspersed.	,556	81,9	80,0	79,5	Calm.	Cirro-strati and nimbi.	0,20	0,22		21
22	,552	80,8	80,2	79,0	Calm.	Cirro-strati.	,604	84,3	85,1	81,9	E. ..	Cloudy.	,590	85,6	88,8	83,5	E. ..	Cumuli and haze.	,540	85,4	91,5	84,0	110,0	S. E.	C.S.on the hor.zenith.	,508	85,5	90,0	83,9	E....	cum. str. on the hor.	,514	82,0	82,2	80,0	E. ..	Scattered clouds,	0,50	0,53		22
23	,500	80,4	80,0	79,2	Calm.	Nbi. interspersed	,520	83,5	87,0	83,0	E. ..	Cloudy & lt. Nbi.	,526	87,8	91,2	85,3	c. b. n.	ztb. clr; nbi. on the hozn.	,486	85,6	89,2	84,9	.....	E. ..	Cloudy dist. thunder.	,474	85,0	87,0	83,2	E....	Cloudy. [zenith clear.	,474	83,9	84,2	81,3	E. ..	Lt. Nim. & scat. clds.				23
24	,506	80,0	79,9	78,0	E. ..	cir. st. & lt. nimbi	,540	83,5	81,2	81,5	E. ..	Nbi faint sunshine	,540	86,9	91,0	85,2	E. ..	Nbi. & Cli. str. (ztb.clr.)	,480	87,7	93,0	85,2	105,8	E. ..	Cumuli zenith clear.	,450	86,6	91,5	85,2	E....	Cumuli.	,456	84,2	86,6	83,0	Calm.	Generally clear.				24
25	,500	80,5	81,8	80,0	E. ..	Misty.	,546	85,0	90,0	83,7	E. ..	lt. cir. str. & mists	,530	88,4	89,5	83,9	E. ..	Nimbi.	,490	83,4	83,0	81,0	.....	E. ..	Nimbi interspersed.	,472	83,9	84,4	82,8	E....	nbi. on the zenith shwy.	,472	82,3	82,0	80,2	Calm.	Nimbi interspersed.				25
26	,496	80,0	79,9	79,0	E. ..	Nimbi raining.	,538	82,3	82,1	81,0	E. ..	Nbi. rain occasly.	,529	81,0	81,0	79,5	E. ..	overcast Nbi. (drizzling)	,492	82,2	83,0	81,5	.....	E. ..	Cloudy.	,480	83,0	83,5	80,9	S. E. .	Cloudy.	,488	82,0	81,8	80,0	e. b. s.	Nimbi interspersed.	0,97	1,03	○	26
27	,500	80,2	79,9	79,0	e. b. s.	Nimbi raining.	,562	81,9	83,0	81,0	S. E.	Cldy. Nbi. ind.	,558	84,3	86,9	83,0	S. E.	Cloudy (Nbi.& Cli.sun.)	,532	81,6	81,0	80,0	.....	Calm.	Nimbi	,530	81,8	81,2	80,0	Calm.	Nimbi interspersed.	,542	81,6	81,0	80,0	Calm.	Nimbi interpersed.	1,26	1,31		27
28	,580	79,8	78,9	78,6	S.....	Nbi. interspersed	,628	80,0	78,9	78,5	S.....	overcast raining.	,610	80,5	79,9	79,0	w. b. s.	Nimbi raining.	,580	80,8	79,9	79,0	.....	w. b. s.	Overcast raining.	,574	80,5	79,6	79,0	Calm.	Nbi. interspersed rain	,579	80,5	79,0	79,0	Calm.	Overcast nimbi.	1,70	1,83		28
29	,580	79,9	78,0	78,0	S.....	Overcast raining.	,644	79,9	80,0	78,9	S.....	Nimbi clearing.	,634	82,2	83,9	81,5	S. E.	Clouds.	,590	84,9	86,8	83,0	109,0	S. E.	Cirro strati & cumuli.	,585	83,9	86,0	79,7	S.....	Cloudy cirro-strati.	,590	81,2	82,0	79,2	Calm.	Cirro-strati & nbi. dist.	1,07	1,13		29
30	,564	80,0	79,9	79,0	Calm.	Cirro-strati.	,612	83,8	86,0	83,2	S. W.	Cirro-strati.	,608	86,3	88,8	83,9	S.....	Cirro-strati & Cumuli.	,572	85,7	88,0	84,0	108,0	S.....	Zenith clear cir.cli.str.	,570	85,5	86,9	83,2	S.....	Nimbi showery	,576	82,0	81,8	79,5	S.....	Cloudy. [thunder.	0,15	0,16		30
31	,540	80,5	80,0	79,2	Calm.	Nbi. & Cirro-strati	,590	83,2	86,0	81,0	S. W.	Cloudy	,588	85,0	88,3	83,0	S. W.	Cumuli.	,552	83,9	86,1	83,0	.....	S. W.	Nimbi interspersed.	,532	84,4	87,0	83,9	S.....	Cloudy	,538	82,2	82,0	80,5	Calm.	Cirro-strati.	0,11	0,12		31
Mean.	29,509	81,2	80,1	79,4			,564	82,8	84,9	81,8			,555	84,3	87,1	83,0			,517	84,2	86,5	83,0	111,7			,499	83,9	85,6	81,7			,507	82,2	82,6	80,8			13,95	14,77		

N° III Diagram of the Hurricane on the 5th June 1839 reduced to half-scale from the General Chart
Outer circle 300 miles in diameter

Time, Noon

J Black Govt Lith Press Calcutta

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